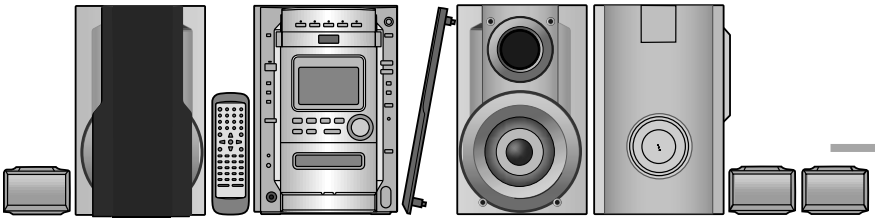
Panasonic



# DVD Stereo System

## Operating Instructions

The above illustration of the unit is an example and shows the model for the U.S.A.

Model No. **SC-DK20**

**Before connecting, operating or adjusting this product, please read these instructions completely.**
**Please keep this manual for future reference.**

DVD VIDEO

COMPACT disc DIGITAL VIDEO

### Region number supported by this unit

Region numbers are allocated to DVD unit and software according to where they are sold.

**For U.S.A. and Canada**

- The region number of this unit is "**1**".
- The unit will play DVDs marked with labels containing "**1**" or "**ALL**".

**Example:**

**For the Middle East and South Africa**

- The region number of this unit is "**2**".
- The unit will play DVDs marked with labels containing "**2**" or "**ALL**".

**Example:**

**For Asia**

- The region number of this unit is "**3**".
- The unit will play DVDs marked with labels containing "**3**" or "**ALL**".

**Example:**

**For Australia, N.Z. and Latin America**

- The region number of this unit is "**4**".
- The unit will play DVDs marked with labels containing "**4**" or "**ALL**".

**Example:**

**For U.S.A. only**

**The servicenter list and warranty can be found on pages 59 and 60.**

P PC GCP GN GC GCS

RQT6345-3P

# Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these instructions carefully.
These operating instructions are applicable to the following system.

| | For the Middle East, South Africa and Asia | For U.S.A., Canada and others |
|---|---|---|
| **System** | SC-DK20 | SC-DK20 |
| **Main unit** | SA-DK20 | SA-DK20 |
| **Front speakers** | SB-DK20 | SB-DK20 |
| **Center speaker** | SB-PC90 | SB-PC93 |
| **Surround speakers** | SB-PS90 | SB-PS90 |
| **Subwoofer** | SB-W20 | SB-W20 |

**For areas except U.S.A., Canada, Australia and N.Z.**

## CAUTION:

**Change the voltage setting to suit the AC voltage in your area. See page 9.**
**Note that the unit will be seriously damaged or fail to operate correctly if this setting is not made correctly.**

## CAUTION!

**THIS PRODUCT UTILIZES A LASER.**
**USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**
**DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.**

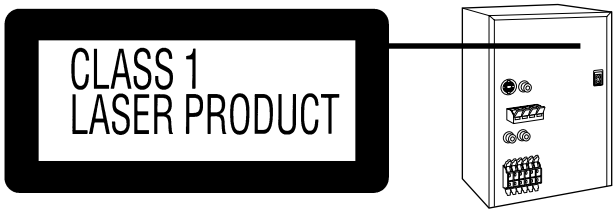
## WARNING:

**TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.**

DANGER - VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM. (FDA 21 CFR)
CAUTION - VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. (IEC60825-1)
ATTENTION - RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
ADVARSEL - SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO! - AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING - SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL - SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VORSICHT - SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
注 意 - 打开时有可见及不可见激光辐射。避免激光束照射。
注 意 - ここを開くと可視及び不可視のレーザー光が出ます。ビームを直接見たり、触れたりしないでください。
RQLS0233

(Inside of product)

**For areas except U.S.A. and Canada**

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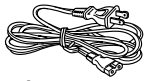
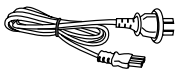
## Supplied accessories

Please check and identify the supplied accessories.
Use numbers indicated in parentheses when asking for replacement parts.
***(Only for U.S.A.)***
***To order accessories contact 1-800-332-5368 or web site (http://www.panasonic.com).***

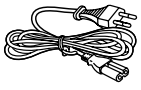
☐ **AC power supply cord ..... 1 pc.**
**For U.S.A. and Canada (RJA0065-1D)**



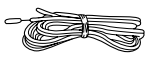
**For Australia and N.Z. (RJA0035-X)**



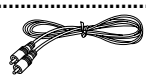
**For others (RJA0019-2X)**



☐ **FM indoor antenna ..... 1 pc.**
**(RSA0006-J)**



☐ **Video cable ..... 1 pc.**
**(RJL1P016B15A)**



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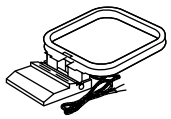
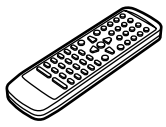
☐ **AM loop antenna ..... 1 pc.**
**(RSA0033-1)**

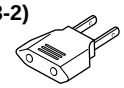


☐ **Remote control transmitter ..... 1 pc.**
**For Australia and N.Z. (N2QAJB000059)**
**For the Middle East, South Africa and Asia (N2QAJB000054)**
**For U.S.A., Canada and Latin America (N2QAJB000053)**



☐ **Remote control batteries ..... 2 pcs.**

☐ **Power plug adaptor ..... 1 pc.**
**For areas except U.S.A., Canada, Australia, N.Z. and Asia (SJP5213-2)**



**THE FOLLOWING APPLIES ONLY IN THE U.S.A.:**

## CAUTION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized changes or modifications to this equipment would void the user's authority to operate this device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**THE FOLLOWING APPLIES ONLY IN THE U.S.A. AND CANADA:**

## CAUTION:

**TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.**

**THE FOLLOWING APPLIES ONLY IN THE U.S.A. AND CANADA:**

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the applicable safety instructions listed below. Keep these operating instructions handy for future reference.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Item 9 applies only in the U.S.A. and Canada.**

**CAUTION!**

- **DO NOT INSTALL, OR PLACE THIS UNIT, IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.**
- **DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.**
- **DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.**
- **DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.**

**For the Middle East, South Africa, Asia and Latin America**
THIS UNIT IS INTENDED FOR USE IN TROPICAL CLIMATES.

**For others**
THIS UNIT IS INTENDED FOR USE IN MODERATE CLIMATES.

This product may receive radio interference caused by mobile telephones during use. If such interference is apparent, please increase separation between the product and the mobile telephone.

## Listening caution

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

We recommend you to avoid prolonged exposure to excessive noise.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing.
Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.
To establish a safe level:

- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

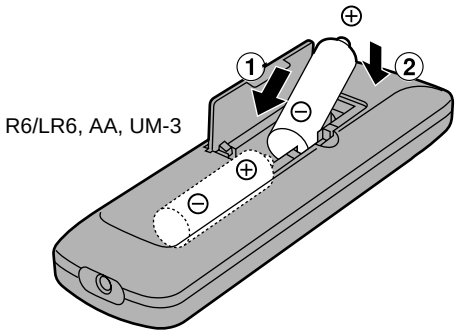
Once you have established a comfortable sound level:

- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

# The remote control

## Batteries



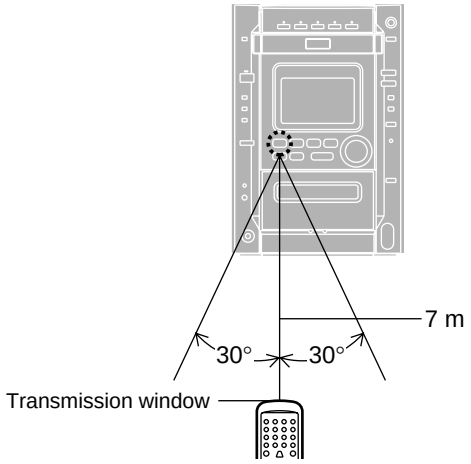

- Insert so the poles (+ and –) match those in the remote control.
- Do not use rechargeable type batteries.

**Do not;**
- mix old and new batteries.
- use different types at the same time.
- heat or expose to flame.
- take apart or short circuit.
- attempt to recharge alkaline or manganese batteries.
- use batteries if the covering has been peeled off.
- keep together with metallic objects such as necklaces.

Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.
If electrolyte leaks from the batteries, consult your dealer.
Wash thoroughly with water if electrolyte comes in contact with any part of your body.

Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.
Replace if the unit does not respond to the remote control even when held close to the front panel.

## Use




Aim at the sensor, avoiding obstacles, at a maximum range of 7 meters directly in front of the unit.
- Keep the transmission window and the unit's sensor free from dust.
- Operation can be affected by strong light sources, such as direct sunlight, and the glass doors on cabinets.

**Do not;**
- put heavy objects on the remote control.
- take the remote control apart.
- spill liquids onto the remote control.

# Disc information

## Types of discs

This unit can playback discs bearing any of the marks.

| DVD-Video | DVD-R | Audio CD | Video CD |
|---|---|---|---|
| DVD VIDEO<br>DVD VIDEO | DVD R 4.7 | COMPACT disc DIGITAL AUDIO | COMPACT disc DIGITAL VIDEO |

### ■ CD-R and CD-RW discs
This unit can play CD-DA (digital audio) and video CD format audio CD-R and CD-RW that have been finalized ( a process that enables CD-R/CD-RW players to play audio CD-R and CD-RW) upon completion of recording. It may not be able to play some CD-R or CD-RW due to the condition of the recording.

### ■ DVD-R discs
Panasonic DVD-R recorded and finalized on a Panasonic DVD video recorder are played as DVD-Video on this unit.
It may not be possible to play these discs in all cases due to the type of disc or condition of the recording.

This unit does not have a DTS decoder so it cannot play audio encoded with DTS.

This unit cannot play the following discs:
- DVD with an unsuitable region number (➡ front cover)
- DVD-Audio
- DVD-ROM
- DVD-RAM
- +RW
- DVD-RW
- Divx Video Disc
- CD-ROM
- CDV
- CVD
- CD-G
- SACD
- SVCD
- Photo CD

**Do not;**
- use irregularly shaped discs.

- attach extra labels and stickers.
- use discs with labels and stickers that are coming off or with adhesive exuding from under labels and stickers.

- attach scratch-proof covers or any other kind of accessory.
- write anything on the disc.
- clean discs with liquids. (Wipe with a soft, dry cloth.)
- use discs printed with label printers available on the market.

## Disc symbols used in these operating instructions

The functions you can use depend on the type of disc you play. These marks are used to indicate which type of disc is available for use.

**DVD** : Feature can be used with DVD-Video

**VCD** : Feature can be used with Video CD

**CD** : Feature can be used with Audio CD

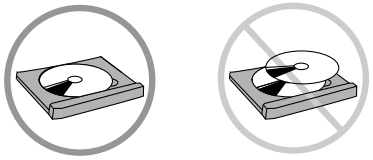
### Playing DVDs and Video CDs

The producer of the material can control how these discs are played. This means that you may not be able to control play of a disc with some operations described in these operating instructions. Read the disc's instructions carefully.

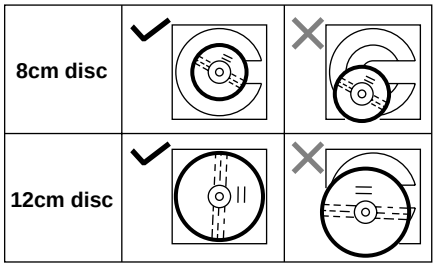
## To prevent damage

Always observe the following points.

- Load only 1 disc per tray.



- Load discs as shown in the figure.




An adaptor is not needed with 8 cm discs (singles).

- Set the system on a flat, level surface.
- Always unload all discs before moving the unit.

### Do not;

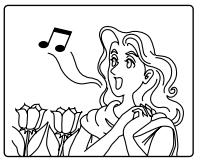
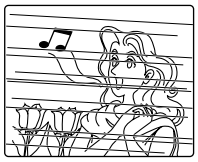
- set the unit on top of magazines, inclined surfaces, etc.
- move the unit while a tray is opening/closing, or when loaded.
- put anything except discs in trays.
- use cleaning discs or discs which are badly warped or cracked.

## Type of disc for the type of TV

DVDs and Video CDs are recorded using either PAL or NTSC.

**For Australia, N.Z., the Middle East, South Africa and Asia**

Refer to this table when selecting discs.
Example of how the picture appears on the screen

✔ . . . . .  ✕ . . . . . 

| TV type | Disc | TV Monitor | |
|---|---|---|---|
| | | For the Middle East, South Africa, Australia and N.Z. | For Asia |
| Multi-system TV | PAL | ✔ | ✔ |
| | NTSC | ✔※1 | ✔ |
| NTSC TV | PAL | ✕ | ✕ |
| | NTSC | ✕ | ✔※3 |
| PAL TV | PAL | ✔ | ✔ |
| | NTSC | ✔※2 | ✔※4 |

※1 If you select "NTSC" in "NTSC Disc Output" (➡ page 50), the picture may be clearer.

※2 The factory preset for "NTSC Disc Output" is "PAL60", so no changes to the settings are necessary.
(If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.)

※3 The factory preset for "NTSC Disc Output" is "NTSC", so no changes to the settings are necessary.

※4 Select "PAL60" in "NTSC Disc Output" (➡ page 50).
(If your television is not equipped to handle PAL 525/60 signals the picture will not be shown correctly.)

**For U.S.A., Canada and Latin America**

The unit can playback only NTSC system discs.

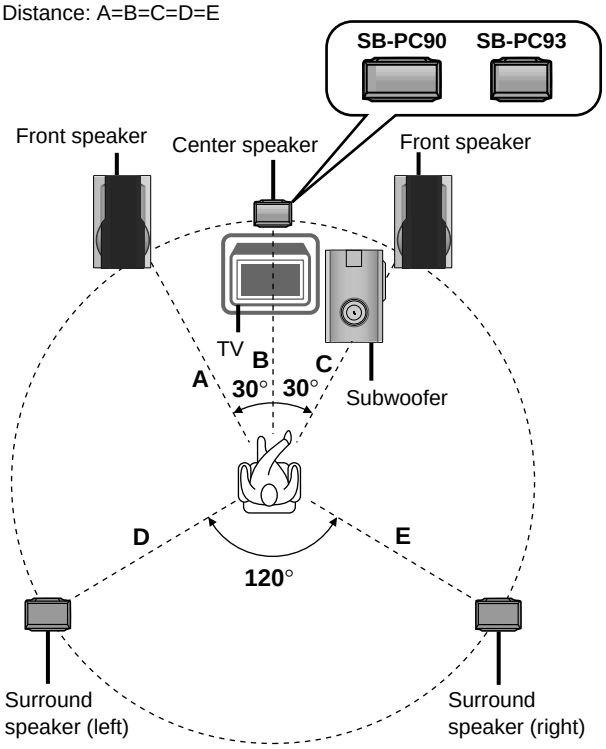
**Note**

The bottom part of the picture may be cut off if the Video CD played does not comply with standards.

# Simple set-up

## STEP 1 Locating

Optimum location
Distance: A=B=C=D=E




### Front speaker (SB-DK20)

Speakers are designed identically so that no left or right channel orientation is necessary.

### Center speaker

- **(For the Middle East, South Africa and Asia)**
  The medium-sized speaker is the center speaker **(SB-PC90)**.
- **(For U.S.A., Canada and others)**
  The small speaker with the short cord is the center speaker **(SB-PC93)**.

The model numbers are printed on the back of the speakers.

### Surround speakers (SB-PS90)

The small speakers with the long cords are surround speakers. Place on either side of listening position, or slightly to the rear, about 1 meter higher than ear level with the Panasonic logo facing towards the listening position.
The effect varies with the type of music and music source.

### Subwoofer (SB-W20)

Place near the television, on the floor or a sturdy shelf so that it won't cause vibration.

**Note**

- Keep your speakers at least 10mm ($^{13}/_{32}$") away from the system for proper ventilation.
- Do not place the center speaker on the main unit as sound quality will be affected.

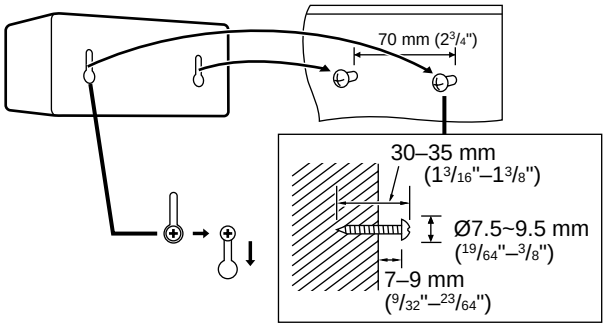
**Use only supplied speakers**

Using other speakers can damage the unit and sound quality will be negatively affected.

---

### Attaching to a wall

Surround speakers can be attached to a wall.
Set the speaker onto screws and slide through bracket to lock into position.




**Note**

The wall or pillar on which the speakers are to be attached should be capable of supporting 5 kg (11 lb.) per screw.

**Caution**

- **Use the speakers only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speakers, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.**
- **Do not attempt to attach these speakers to walls using methods other than those described in this manual.**

### Notes on speaker use

■ You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
■ Reduce the volume in the following cases to avoid damage.
- When playing distorted sound.
- When the speakers are receiving howling from a microphone or record player, noise from FM broadcasts, or continuous signals from an oscillator, test disc, or electronic instrument.
- When adjusting the sound quality.
- When turning the unit on or off.

### Positioning for best effect

How you set up your speakers can affect the bass and the sound field. Note the following points.
- Place speakers on flat secure bases.
- Placing speakers too close to floors, walls, and corners can result in excessive bass. Cover walls and windows with a thick curtain.

### If irregular coloring occurs on your television

These speakers are designed to be used close to a television, but the picture may be affected with some televisions and set-up combinations.
**If this occurs, turn the television off for about 30 minutes.**
The television's demagnetizing function should correct the problem. If it persists, move the speakers further away from the television.

# Simple set-up

## STEP 2 Speakers and TV

**The illustrations show the model for U.S.A., Canada, Australia, and N.Z.**

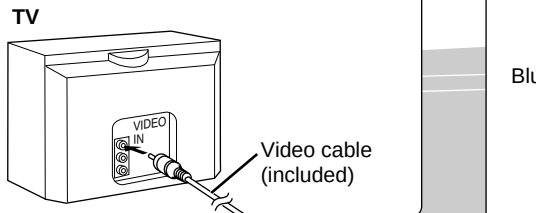
Connect the cords to the terminals of same color.
- Never short-circuit positive (+) and negative (–) speaker wires.
- Be sure to connect only positive (red or gray) wires to positive (+) terminals and negative (black, blue or gray with blue line) wires to negative (–) terminals.

  Incorrect connection can damage the speakers.

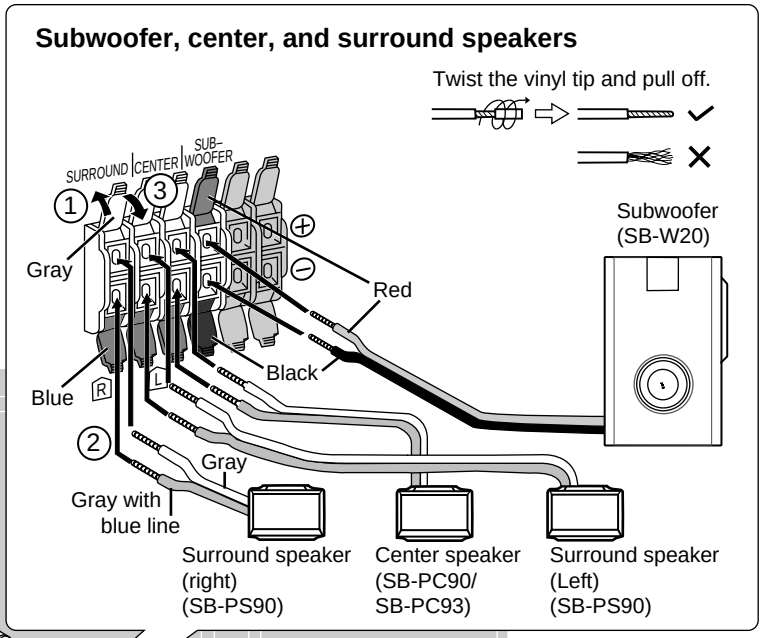


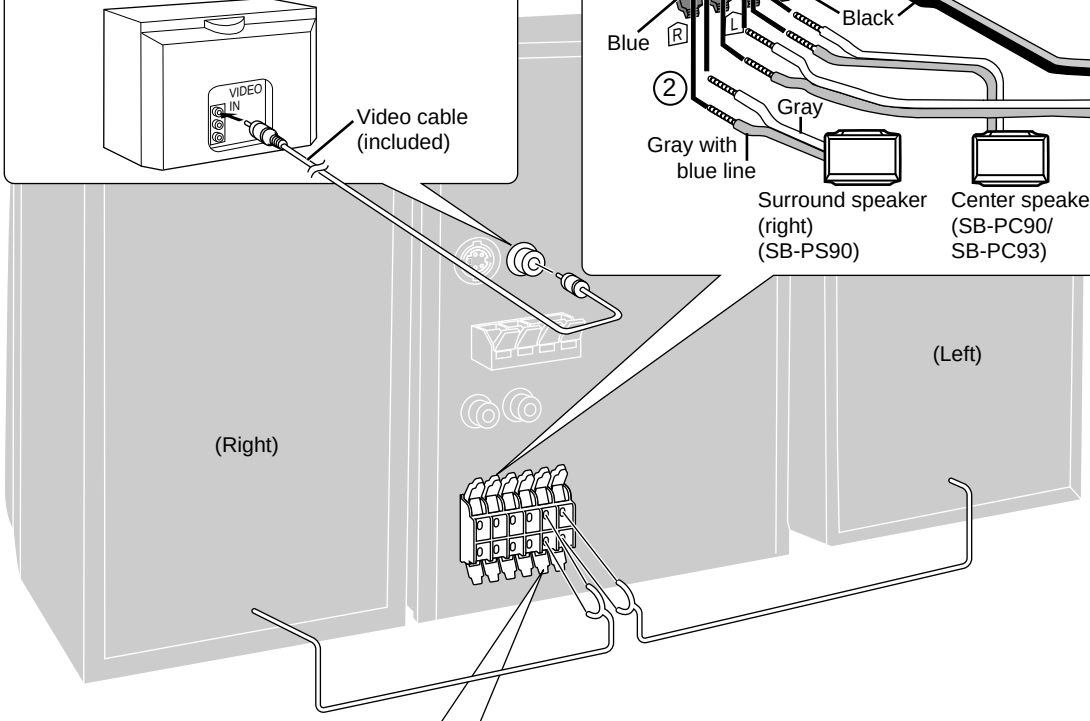
**TV** (not included)
You can connect through the S-VIDEO terminal if your TV has an S-VIDEO terminal (➡ page 47).

**Connect directly to your TV.**
Do not connect the unit through a video cassette recorder, because the picture may not be played correctly due to the copy guard.

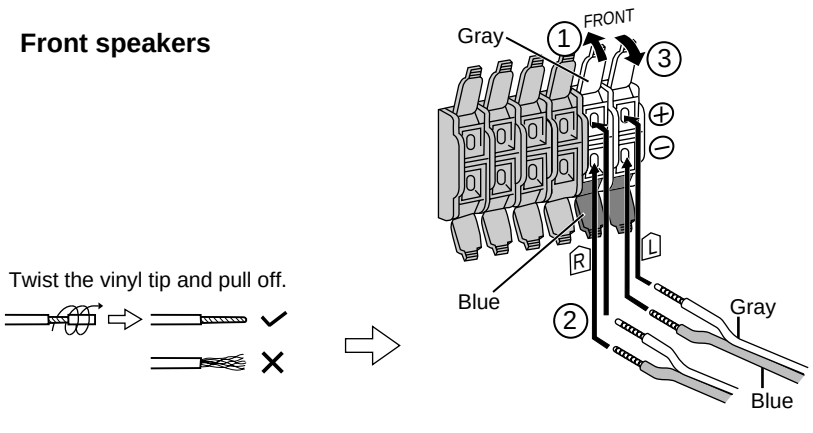



**Subwoofer, center, and surround speakers**




**Front speakers**



# STEP 3 Antennas and AC power supply cord

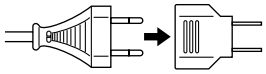


**For areas except U.S.A., Canada, Australia and N.Z.**

**Set the voltage before connection (➡ below).**

### AC power supply cord

**For areas except U.S.A., Canada, Australia, N.Z. and Asia**
If the power plug will not fit your socket, use the power plug adaptor (included).



**Note**
The included AC power supply cord is for use with this unit only. Do not use it with other equipment.

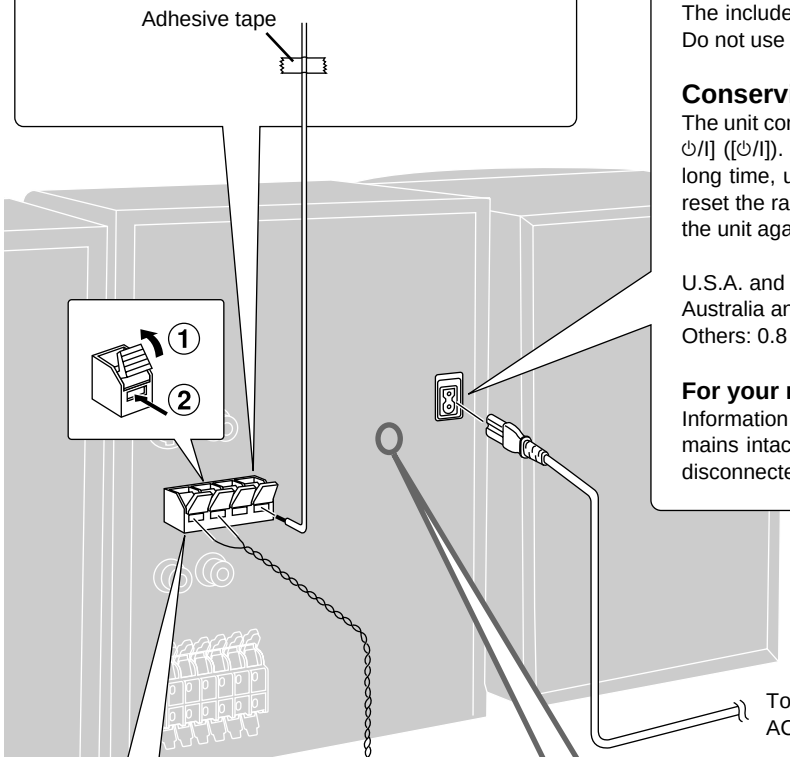
### Conserving power
The unit consumes power even when it is turned off with [POWER ⏻/I] ([⏻/I]). To save power when the unit is not to be used for a long time, unplug it from the household AC outlet. Remember to reset the radio stations and any other memory items before using the unit again.

U.S.A. and Canada: 0.25 W
Australia and N.Z.: 0.6 W
Others: 0.8 W

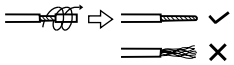
### For your reference
Information you enter into the unit's memory, except for time, remains intact for up to a week after the AC power supply cord is disconnected.

### FM indoor antenna
Twist the vinyl tip and pull off.

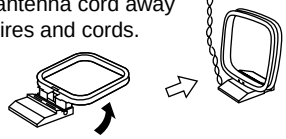
Fix the other end of the antenna where reception is best.




### AM loop antenna
Twist the vinyl tip and pull off.



Stand the antenna up on its base.
Keep loose antenna cord away from other wires and cords.



### Voltage setting
**For areas except U.S.A., Canada, Australia and N.Z.**
Use a flat-head screwdriver to turn the voltage selector to the appropriate position for your area.

127 V↔110 V↔ 220 V-230 V↔240 V

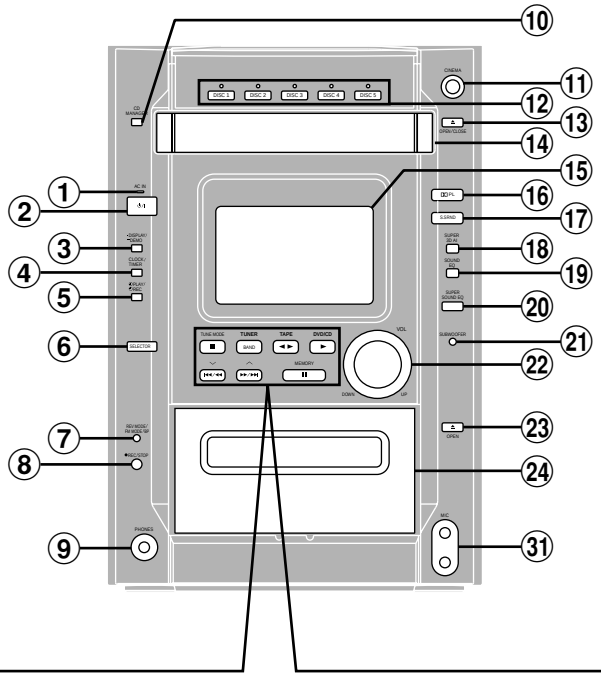
If the power supply in your area is 115 V or 120 V, please set the voltage selector as follows.
For 115 V: Set to 110 V.
For 120 V: Set to 127 V.

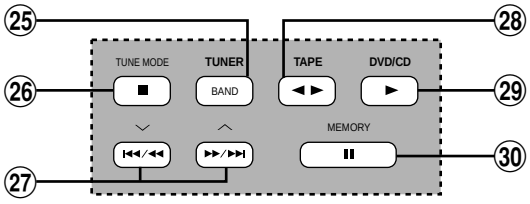
Note that the unit will be seriously damaged or fail to operate correctly if this setting is not made correctly.

# Front panel controls

## Main unit

**The illustration is the model for the Middle East, South Africa and Asia.**




① **AC supply indicator (AC IN)**
This indicator lights when the unit is connected to the AC mains supply.

② **For U.S.A. and Canada : Standby/on switch (POWER ⏻/I)**
**For others : Standby/on switch (⏻/I)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

③ **Display select/demonstration button (-DISPLAY/–DEMO) . . . . . 12, 46**

④ **Clock/timer button (CLOCK/TIMER) . . . . . 12, 43, 44**

⑤ **Timer button (◴PLAY/◴REC) . . . . . 43, 44**

⑥ **Source select button (SELECTOR) . . . . . 12, 48**
Each time you press the button:
TUNER→TAPE→DVD/CD→AUX

⑦ **Tape reverse mode, FM mode, AM beat proof button (REV MODE/FM MODE/BP) . . . . . 28, 30, 39**

⑧ **Recording start/stop button (●REC/STOP) . . . . . 38**

⑨ **Headphones jack (PHONES) . . . . . 46**

⑩ **CD MANAGER button (CD MANAGER) . . . . . 24**

⑪ **CINEMA mode button and indicator (CINEMA) . . . . . 18**

⑫ **Disc direct select buttons and disc indicators (DISC 1 – DISC 5)**

⑬ **Disc tray open/close button (⏏ OPEN/CLOSE) . . . . . 14**

⑭ **Disc tray**

⑮ **Display**

⑯ **DOLBY PRO LOGIC button and indicator (□□ PL) . . . . . 34**

⑰ **Super surround button and indicator (S.SRND) . . . . . 36**

⑱ **Super 3D AI EQ button (SUPER 3D AI) . . . . . 32**

⑲ **Sound EQ button (SOUND EQ) . . . . . 31**

⑳ **Super sound EQ button and indicator (SUPER SOUND EQ) . . . . . 32**

㉑ **Subwoofer button and indicator (SUBWOOFER) . . . . . 31**

㉒ **Volume control (VOL) . . . . . 14, 28, 30**

㉓ **Cassette holder open button (⏏ OPEN) . . . . . 30**

㉔ **Cassette holder**

㉕ **Tuner, band select button (TUNER, BAND) . . . . . 28**
Press to select TUNER as the source.
Lights when TUNER is selected as the source.

㉖ **Disc/tape stop, tuning mode select button (■, TUNE MODE) . . . . . 14, 28, 30**

㉗ **Disc skip/search, tape fast-forward/rewind/TPS, tune/time adjust buttons (I◀◀/◀◀, ∨, ▶▶/▶▶I, ∧) . . . . . 12, 17, 28, 30**

㉘ **Tape play button (TAPE ◄►) . . . . . 30**
Press to select TAPE as the source.
Lights when TAPE is selected as the source.

㉙ **Disc play button (DVD/CD ►) . . . . . 14**
Press to select DVD/CD as the source.
Lights when DVD/CD is selected as the source.

㉚ **Disc pause, memory button (II, MEMORY) . . . . . 16, 29**

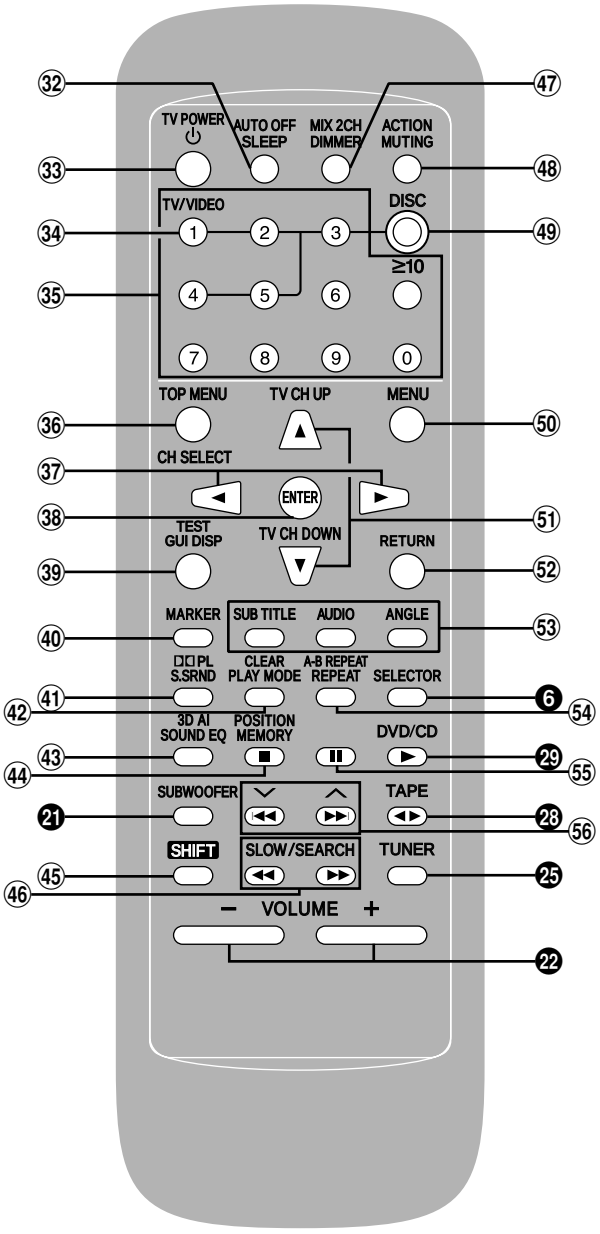
**For the Middle East, South Africa and Asia**

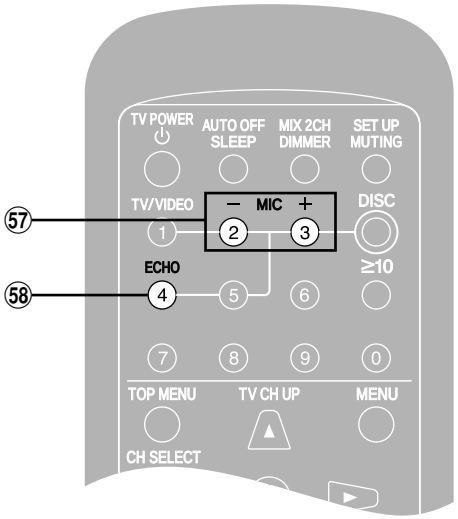
㉛ **Microphone jacks (MIC) . . . . . 39**

## Remote control

**The illustration shows the remote control for areas except Australia, N.Z., the Middle East, South Africa and Asia.**

**Buttons such as ❻ function in the same way as the controls on the main unit.**



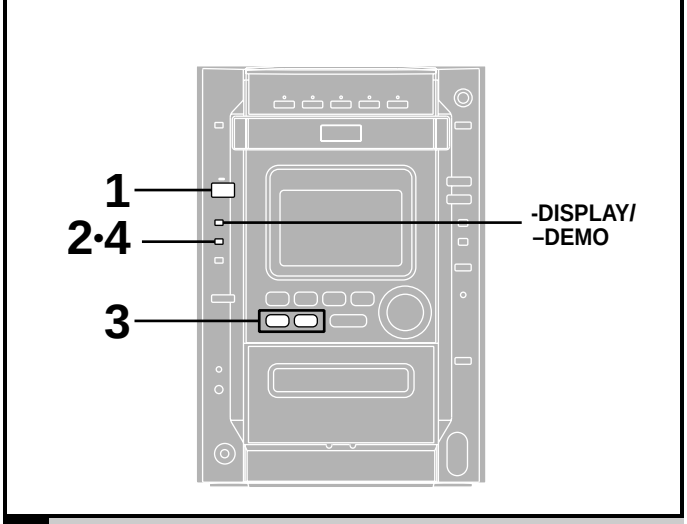

- ㉜ **Sleep button (SLEEP)** . . . . . **45**
- ㉝ **Standby/on switch (⏻)**
- ㉟ **Numbered buttons (0–9, ≥10)** . . . . . **22, 29**
- ㊱ **Top menu button (TOP MENU)** . . . . . **14, 15**
- ㊲㊶ **Cursor buttons (◄, ►, ▲, ▼)** . . . . . **13, 15, 17, 31**
- ㊳ **Enter button (ENTER)** . . . . . **13, 15, 20**
- ㊴ **GUI display button (GUI DISP)** . . . . . **25**
- ㊵ **Marker button (MARKER)** . . . . . **20**
- ㊶ **Super surround button (S.SRND)** . . . . . **36**
- ㊷ **Play mode select button (PLAY MODE)** . . . . . **22, 23**
- ㊸ **Sound EQ button (SOUND EQ)** . . . . . **31**
- ㊹ **Stop button (■)** . . . . . **14, 30**
- ㊺ **Shift button (SHIFT)**
  See below.
- ㊻ **Disc slow/search button (SLOW/SEARCH ◄◄, ►►)** . . . . . **17**
- ㊼ **Display dimmer button (DIMMER)** . . . . . **46**
- ㊽ **Muting button (MUTING)** . . . . . **46**
- ㊾ **Disc button (DISC)** . . . . . **22**
- ㊿ **Menu button (MENU)** . . . . . **14, 15**
- (51) **Return button (RETURN)** . . . . . **13, 14, 25**
- (52) **Subtitle/audio/angle buttons (SUB TITLE) (AUDIO) (ANGLE)** . . . . . **18, 19**
- (53) **Repeat button (REPEAT)** . . . . . **21**
- (54) **Pause button (❚❚)** . . . . . **16**
- (55) **Disc skip, tape fast-forward/rewind/TPS, tuning button (I◄◄,∨, ►►I,∧)** . . . . . **17, 28, 30**

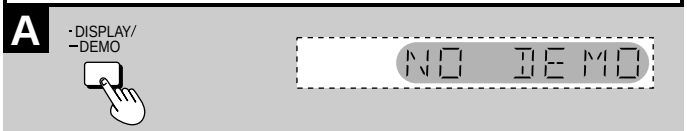
**To operate functions labeled in orange, press [SHIFT] (㊺) and the corresponding button at the same time.**

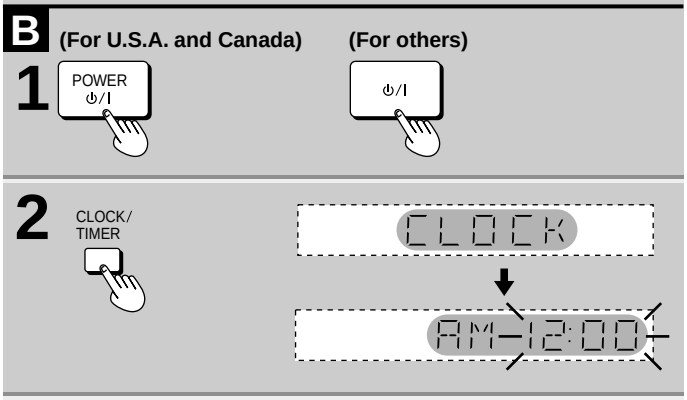
- ㉜ **Auto power-off button (AUTO OFF)** . . . . . **12**
- ㉝ **TV power on/off button (TV POWER)** . . . . . **48**
- ㉞ **TV/video input mode select button (TV/VIDEO)** . . . . . **48**
- ㊱ **Channel select button (CH SELECT)** . . . . . **35**
- ㊴ **Test signal button (TEST)** . . . . . **35**
- ㊶ **DOLBY PRO LOGIC button (PL)** . . . . . **34**
- ㊷ **Clear button (CLEAR)** . . . . . **20, 22**
- ㊸ **Super 3D AI EQ button (3D AI)** . . . . . **32**
- ㊹ **Position memory button (POSITION MEMORY)** . . . . . **16**
- ㊼ **2 channel down-mixing button (MIX 2CH)** . . . . . **34**
- ㊽ **Initial settings button (ACTION)** . . . . . **13**
  This button is labeled “SET UP” on the remote control for Australia, N.Z., the Middle East, South Africa and Asia.
- (51) **TV channel select buttons (TV CH UP, TV CH DOWN)** . . . **48**
- (54) **A-B repeat button (A-B REPEAT)** . . . . . **21**

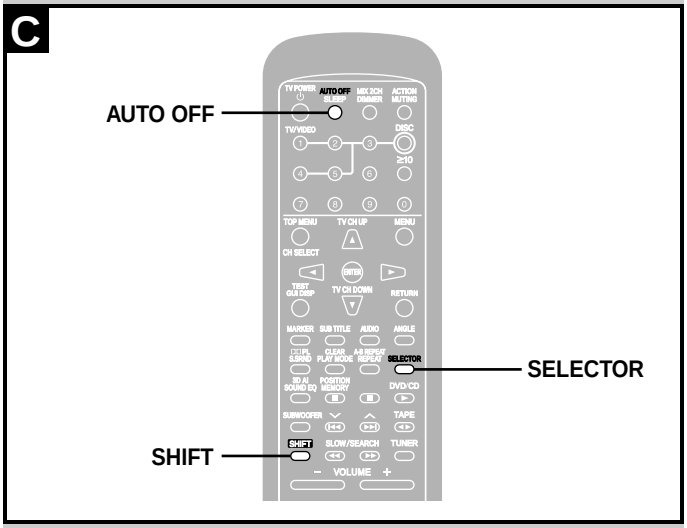
The numbered buttons are also used for karaoke functions on the remote control for the Middle East, South Africa and Asia.

- (57) **Microphone volume buttons (– MIC +)** . . . . . **39**
- (58) **Echo button (ECHO)** . . . . . **42**



## A Turning DEMO off

A demonstration of the display is shown if you have not set the clock. You can reduce the power consumed in standby mode by turning it off.

**Press and hold [-DISPLAY/–DEMO] until "NO DEMO" is displayed.**

Each time you press and hold the button:
NO DEMO (off) ↔ DEMO (on)

## B Setting the time

**For U.S.A. and Canada:** 12-hour clock
**For others:** 24-hour clock
The example shows how to set the 12-hour clock for 4:25 p.m.

**1 Press [POWER ⏻/I] ([⏻/I]) to turn the unit on.**

**2 Press [CLOCK/TIMER] to display "CLOCK".**

Each time you press the button:
**CLOCK**→PLAY→REC→Original display

**3 (Within 5 seconds or so)**
**Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to set the time.**

The time display can be changed in one minute units by tapping the buttons, and quickly by holding down the buttons.

**4 Press [CLOCK/TIMER].**

The time is set and the original display is restored.

---

**Displaying the clock**
Press [CLOCK/TIMER] to display "CLOCK".
The clock is shown for about 5 seconds then the previous display is restored.

Reset the clock regularly to maintain accuracy.

## C Auto power-off

**Remote control only**

When disc or tape is selected as the source
To save power, the unit turns off if it is left unused for 10 minutes.

This function does not work if the source is tuner or AUX or if a disc menu is being displayed.

**1 Press [SELECTOR] to select "DVD/CD" or "TAPE".**

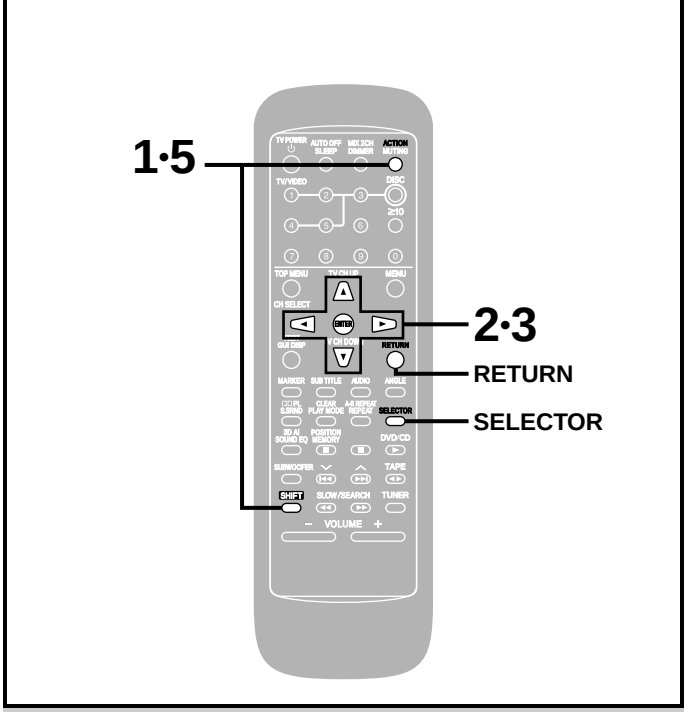
**2 Press [SHIFT] + [AUTO OFF].**

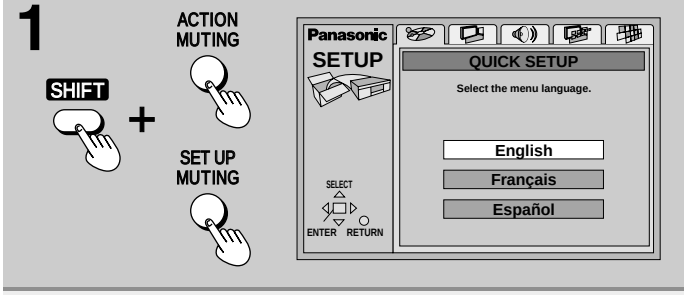
"AUTO OFF" is displayed.

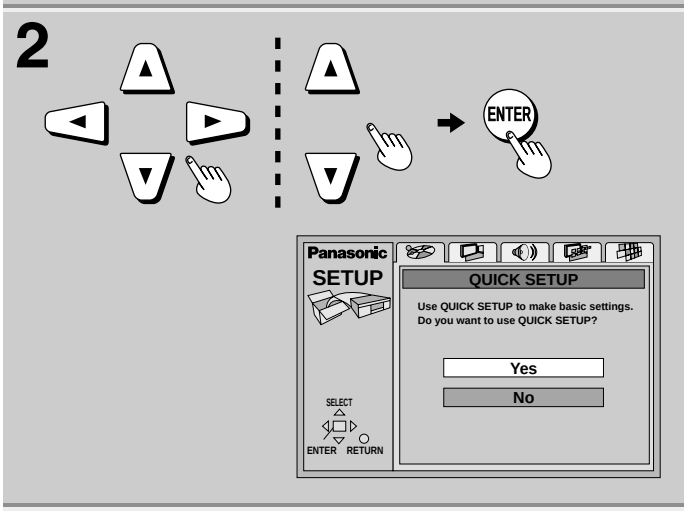
---

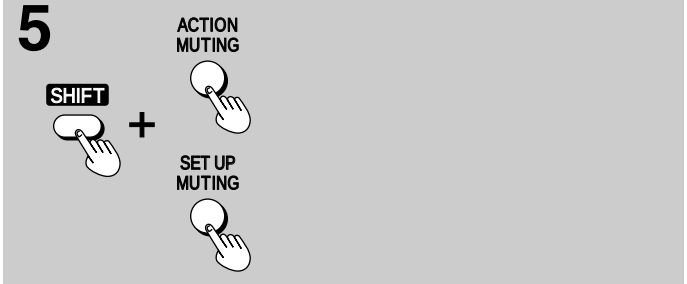
The setting is maintained even if the unit is turned off.
If you select tuner or AUX as the source, "AUTO OFF" goes out. It comes on again when you select disc or tape.

**To cancel**
Press [SHIFT] + [AUTO OFF] again.






# Quick Setup

**Remote control only**

**Preparation**

- Turn on the television and switch the video-input mode on the television to suit the connection.
- Press [SELECTOR] to select “DVD/CD”.

**1** For Australia, N.Z., the Middle East, South Africa and Asia

**Press [SHIFT] + [SET UP] to show the QUICK SETUP screen.**

For U.S.A., Canada and others

**Press [SHIFT] + [ACTION] to show the QUICK SETUP screen.**

The **QUICK SETUP screen** appears when you press [SHIFT] + [ACTION] (or [SET UP]) the first time after purchase and assists you to make necessary settings.

**2** For Australia, N.Z., the Middle East and South Africa

**Press [▲], [▼], [◄], [►] to select the menu language and press [ENTER].**

For U.S.A., Canada and others

**Press [▲], [▼] to select the menu language and press [ENTER].**

**3** **Press [▲], [▼] to select “Yes” to continue and press [ENTER].**

**4** **Follow the onscreen instructions.**

- Audio Language (For setting detail ➡ page 50-51)
- Subtitle Language (For setting detail ➡ page 50-51)
- TV aspect (For setting detail ➡ below)

**5** **Press [ENTER] and then [SHIFT] + [ACTION] (or [SET UP]) to end the settings.**

---

**To return to the previous screen**

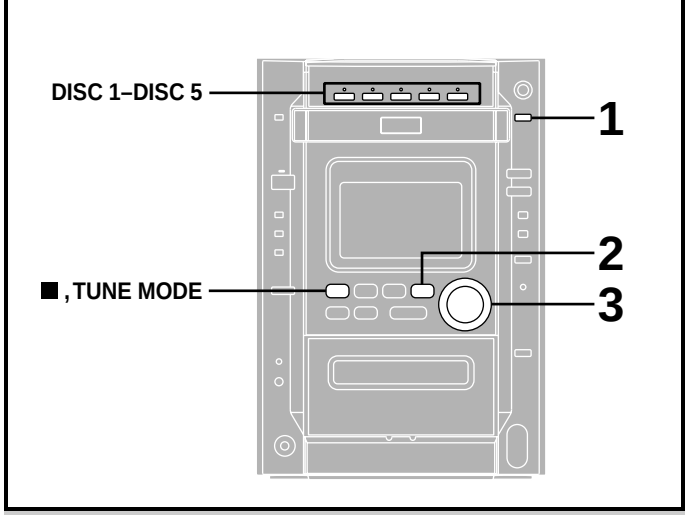
Press [RETURN].

**■ TV Aspect.**

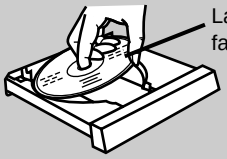
Select “4:3” (regular) or “16:9” (widescreen) to suit your television. If you have a regular 4:3 television, you can also select how video on some discs is shown (➡ page 50, Video–TV Aspect).

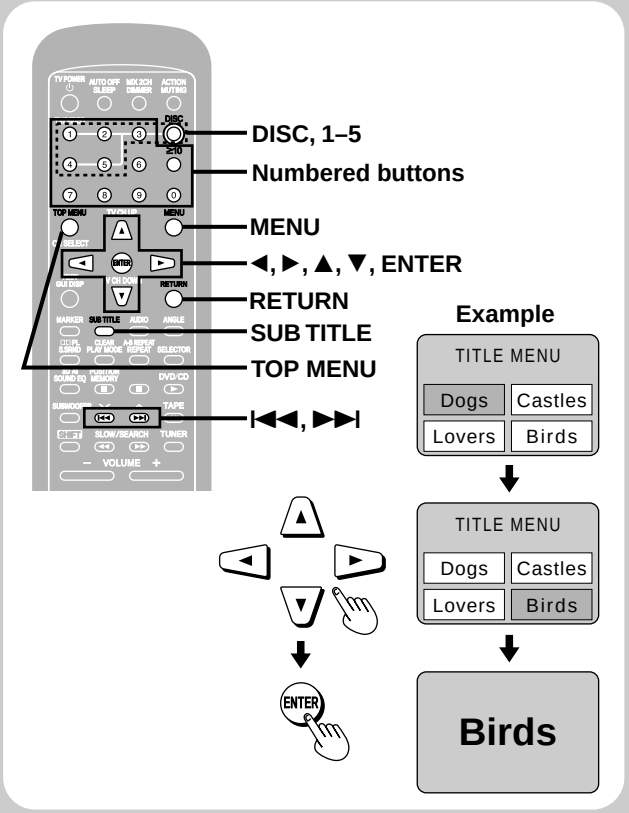
- **4:3 Pan&Scan** (Factory preset)
  The pan and scan (the original widescreen images are converted for viewing on a regular television) version of the video is automatically selected if recorded on the disc.

- **4:3 Letterbox**
  The letterbox (the original widescreen images appear with black bands above and below) version of the video is automatically selected if recorded on the disc.



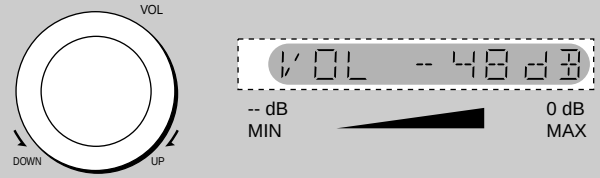

**1**



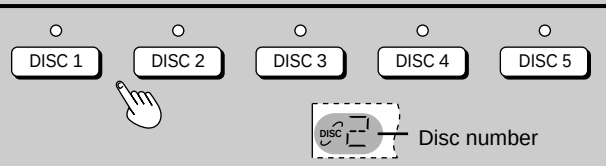




**2**

**3**




**A**




# Discs

## Normal play

DVD VCD CD

**Preparation:** Turn on the television and switch the video-input mode on the television to suit the connection.

### 1 Press [⏏ OPEN/CLOSE] to open the tray.

The unit comes on automatically.
Insert a disc and press [⏏ OPEN/CLOSE] to close the tray.

**If a menu screen appears on the television**

**Remote control only**
Use the cursor buttons (◄, ►, ▲, ▼) to highlight an item and press [ENTER].
You can also select the desired item by pressing the numbered buttons with some discs.
To select title No.10 or over, press [≥10] then the two digits.
e.g. Title No. 12: [≥10] → [1] → [2]
Items can only be selected with the numbered buttons when playing Video CDs.
See below for other menu operations.

### 2 If play does not start after step 1 Press [DVD/CD ►].

CD (MP3 discs)
Group and track names are displayed on the television.
Press [SUB TITLE] to change the display.

### 3 Adjust the volume.

Use the CD MANAGER's ALL-DISC mode to play CDs and Video CDs in succession (➡ page 24).

---

**To stop the disc**
Press [■, TUNE MODE] (the resume function is activated, ➡ page 16).

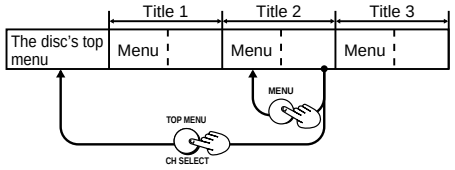
- The disc continues to rotate while the menu is displayed even after a particular item has finished. When no more items are to be selected, be sure to press [■, TUNE MODE] to clear the menu display.

**"⃠" is displayed on the TV**
When the operation is prohibited by the unit or the disc.

**Other buttons used to operate menus**
Read the disc's instructions for further details about operation.

[I◄◄]: Shows the previous menu.
[►►I]: Shows the next menu.
[RETURN]: Shows the menu screen. VCD
[TOP MENU]: Shows the first menu screen. DVD
[MENU]: Shows the menu screen. DVD

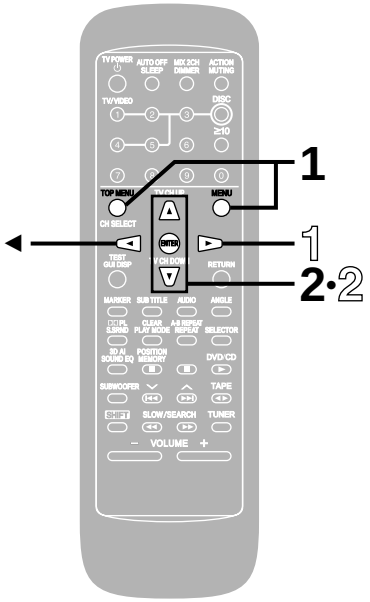
DVDs can have several menus. The menu displayed when you press [TOP MENU] may be different from the menu displayed when you press [MENU].




**How the changer works**

The tray closed when you press [⏏ OPEN/CLOSE] is in **the play position.**
The disc in the play position is ready to play immediately when you press [DVD/CD ►].
The indicator for the tray in the play position lights.

To listen to another disc or open another tray, press [DISC 1]–[DISC 5] (remote control: [DISC] then [1]–[5]) to put the tray in the play position. A




**Information about discs that appears on the unit display**

**"≫"**
When there are 16 or more tracks on the disc (CD and Video CD without PBC).

**"DVD"**
When a DVD is in the play position tray.

**"VCD"**
When a Video CD is in the play position tray.

**"NO DISC"**
When there is no disc on the selected tray or the disc is set incorrectly.

**"NO PLAY"**
When the disc does not correspond to the unit and cannot be played.

**"96kHz 24bit"**
When the disc is one with high quality sound recorded with a sampling frequency of 96 kHz and 24 bits.

## A Using menus to play MP3 discs

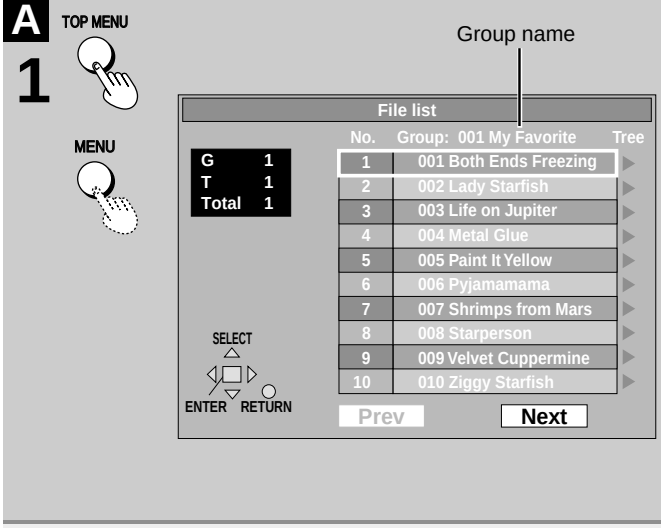
CD (MP3 discs)

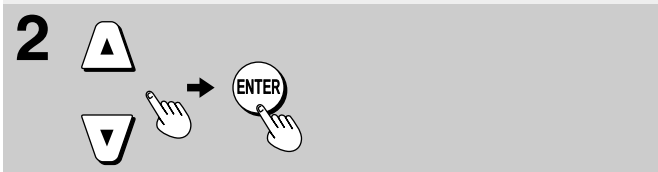
**Remote control only**

This unit can play MP3 files recorded on CD-R/RW with a computer. Files are treated as tracks and folders are treated as groups.

### 1 Press [TOP MENU] or [MENU].
A file list appears.

### 2 Press [▲], [▼] to select the track and press [ENTER].
Play starts and continues to the last track in the last group.
"☞" indicates the track currently playing.



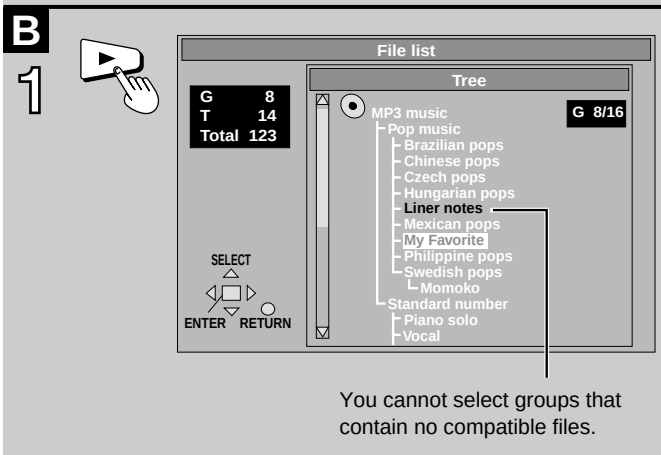

**■ To show other pages**
Press [▲, ▼, ◄, ►] to select "Prev" or "Next" and press [ENTER]. After listing all the tracks in one group, the list for the next group appears.

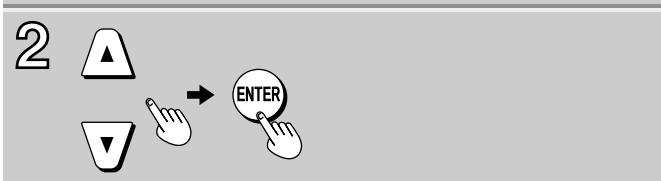
**■ To close the file list screen**
Press [TOP MENU] or [MENU].

## B Using the tree screen to find a group

### 1 Press [►] while a track is highlighted to display the tree screen.

### 2 Press [▲], [▼] to select a group and press [ENTER].
The file list for the group appears.

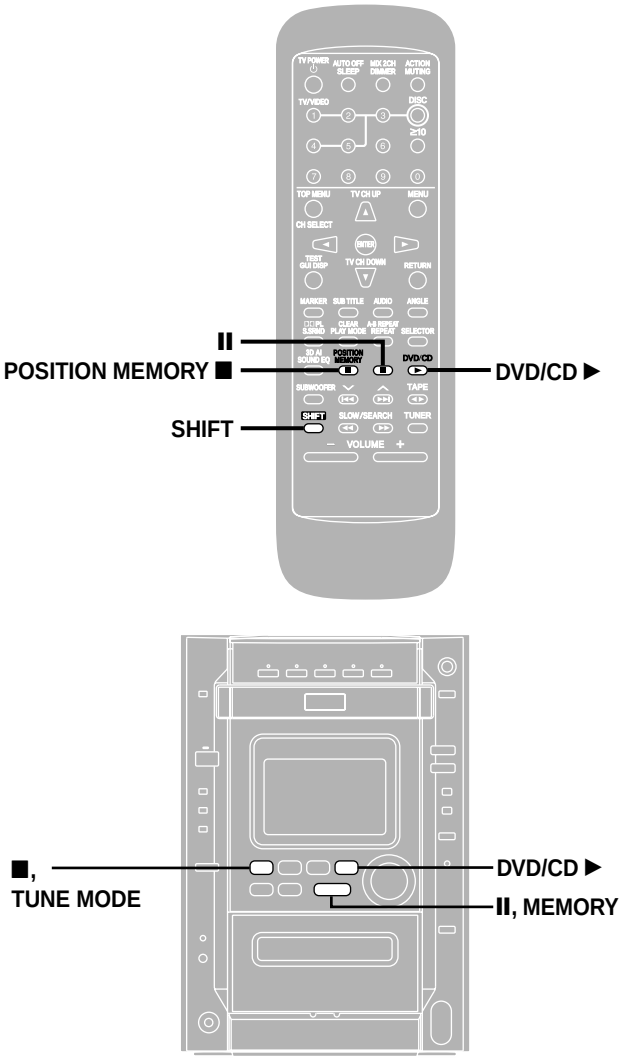



**For your reference**
Press [◄], [►] to jump layers in the tree screen.

**Note**
- You cannot use program play, random play and CD MANAGER.
- This unit may not be able to play disc containing more than one data format.
- If you play an MP3 track that includes still picture data, it will take some time before the music itself starts playing and the elapsed time will not be displayed during this time.
  Even after the track starts, the correct play time will not be displayed.
- This unit is not compatible with ID3 tags.

Refer to the glossary on page 58 for more information about MP3.




## A Pause (Still picture)

**Press [II] (on the main unit: [II, MEMORY] during play.**
Press [DVD/CD ►] to resume play.

## Resume function

DVD VCD CD

**(When the elapsed play time is displayed)**

B "RESUME" lights on the display when the unit has recorded the position at which you stopped play.
Press [DVD/CD ►] to start play from that position.
(When playing DVD ➡ Chapter Preview below)

- The position is cleared when:
  – The unit is turned off.
  – The disc is changed or removed.
  – A source other than DVD/CD is selected.
- Press [■] to clear the position.

## C Position Memory function

### Press [SHIFT] + [POSITION MEMORY] to memorize a position during play.

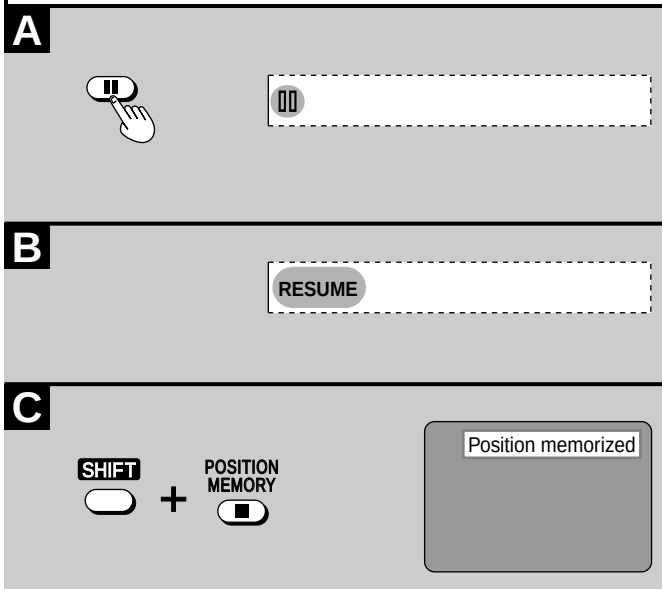
This position is saved even if you change or remove the disc, change the source, or turn the unit off.
When you reselect or reinsert the disc, reselect DVD/CD, or turn the unit on, "RESUME" lights on the display.
Press [DVD/CD ►] to start play from the memorized position.
The position is cleared.
(When playing DVD ➡ Chapter Preview below)

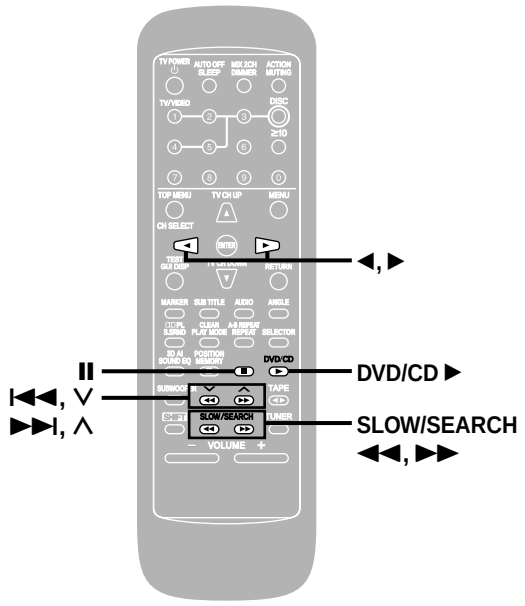
**To clear the position before play**
Press [■].

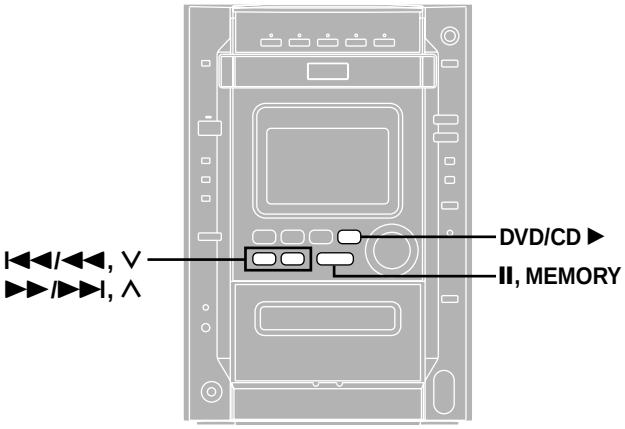
- You can memorize positions on up to five different discs at a time. When you memorize another position, the earliest position is replaced.

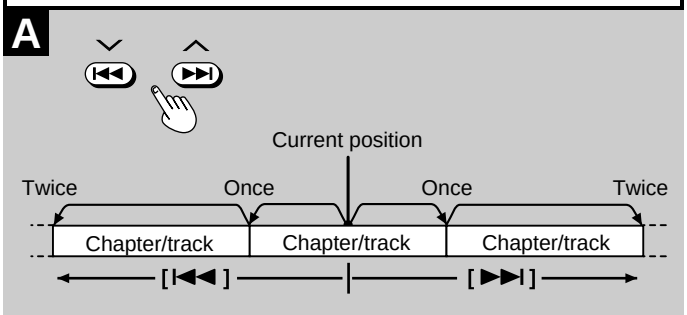
### Chapter preview DVD

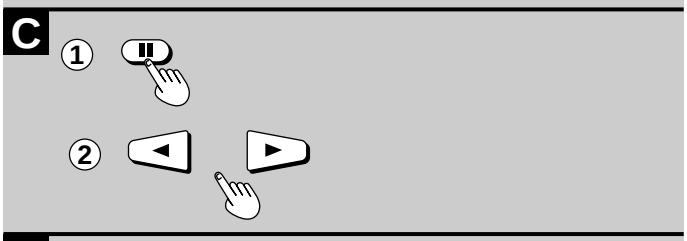
The message "Press PLAY to Preview Chapters" (or "Press PLAY to Chapter Review") appears on the TV immediately after you press [DVD/CD ►].
Press [DVD/CD ►] while the message is displayed and the beginning portions of each chapter up to the current one are played.
Full play resumes from the point where you pressed [■] or [SHIFT] + [POSITION MEMORY].
(This feature works only within a title.)
If you do not press [DVD/CD ►], the message disappears and play starts from where you pressed [■] or [SHIFT] + [POSITION MEMORY].

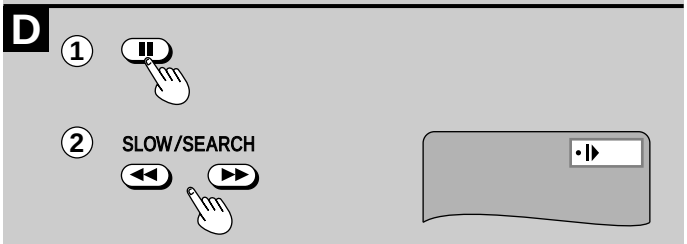







## A Skip

DVD VCD CD

Chapters/titles on DVD and tracks on Video CD and CD can be skipped.

**Remote control:**
Press [I◄◄, ∨] or [►►I, ∧] during play.

On the main unit: [I◄◄/◄◄, ∨] or [►►/►►I, ∧]

I◄◄, ∨ (I◄◄/◄◄, ∨) : Backward
►►I, ∧ (►►/►►I, ∧) : Forward

Each press increases the number of skips.

## B Search

DVD VCD CD

**Remote control:**
**Press [SLOW/SEARCH (◄◄ or ►►)] during play.**
Each press increases the speed of the search up to 5 steps.

On the main unit: [I◄◄/◄◄, ∨] or [►►/►►I, ∧]
The speed increases if you press and hold the button.

◄◄ (I◄◄/◄◄, ∨) : Backward
►► (►►/►►I, ∧) : Forward

Press [DVD/CD ►] to resume play.

**When playing Video CDs with playback control**
Pressing buttons to perform skip or search may take you to a menu screen.

## C Frame-by-frame viewing

DVD VCD

**Remote control only**

**① Press [II] during play.**
**② Press the cursor buttons [◄] (backward) or [►] (forward).**
The frame changes each time you press a cursor button.

- The frames change in succession if you press and hold a cursor button.
- The frame also advances each time you press [II].
- You cannot move backwards with Video CD.

Press [DVD/CD ►] to resume play.

## D Slow-motion play

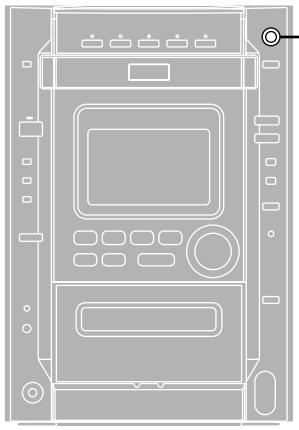
DVD VCD

**Remote control only**

**① Press [II] during play.**
**② Press [SLOW/SEARCH (◄◄ or ►►)].**
◄◄: Backward
►►: Forward
Each press increases the speed of the slow motion. There are 5 speeds.

- You cannot move backwards with Video CD.

**To resume play**
Press [DVD/CD ►] to resume play.




## A Changing the picture quality for movie viewing

**DVD** VCD

You can change the picture quality for movie viewing.

### Press [CINEMA].

The button lights and the CINEMA display appears on the screen.
Each time you press the button:

→ **Cin.1:** Mellows images and enhances detail in dark scenes.
↓
**Cin.2:** Sharpens images and enhances detail in dark scenes.
↓
**Nor.:** Normal mode (Factory preset).

**For your reference**

You can make finer adjustments to the picture if desired (➡ page 27, Digital picture mode–User mode).

## B Switching angles

**DVD**

**Remote control only**

Some DVDs allow you to view the same scene from different angles. “ANGLE” lights up on the unit’s display during scenes recorded with multiple angles to indicate that this feature is available.

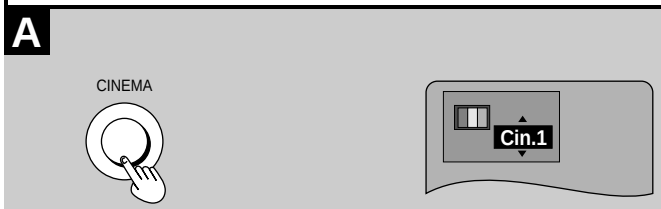
### Press [ANGLE] during play.

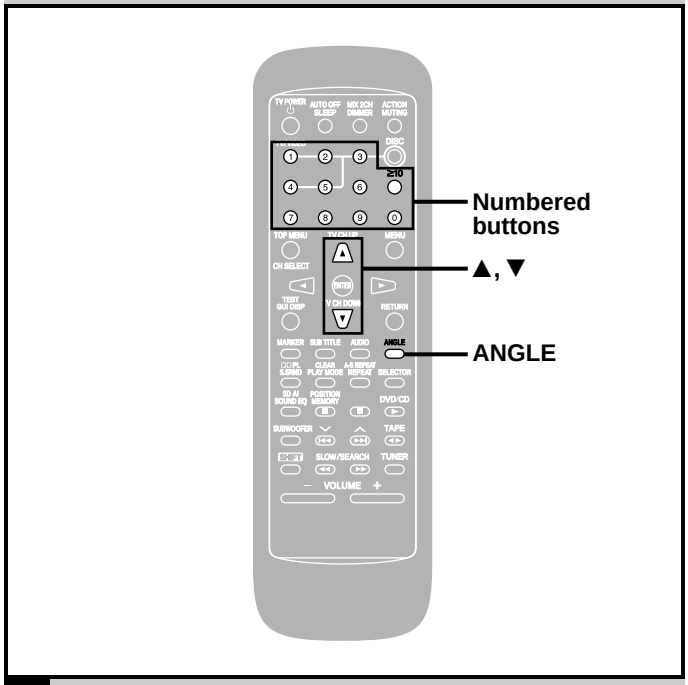
The angle display appears.
The angle number changes each time you press the button.
The number can also be changed with the cursor buttons (▲ or ▼) or the numbered buttons.

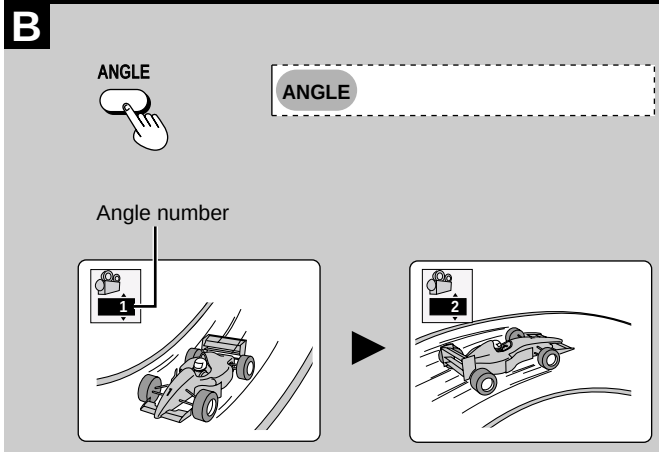
Some discs allow you to set angles before multi-angle scenes are played. Read the instructions that come with the disc.

**Note**

Some discs allow changes to angles only by using the disc’s menus.



## Changing soundtrack and subtitle languages

**DVD**

**Remote control only**

Some DVDs have multiple soundtracks and subtitle languages recorded on them. You can change these during play.

### To change the soundtrack

**Press [AUDIO] during play.**

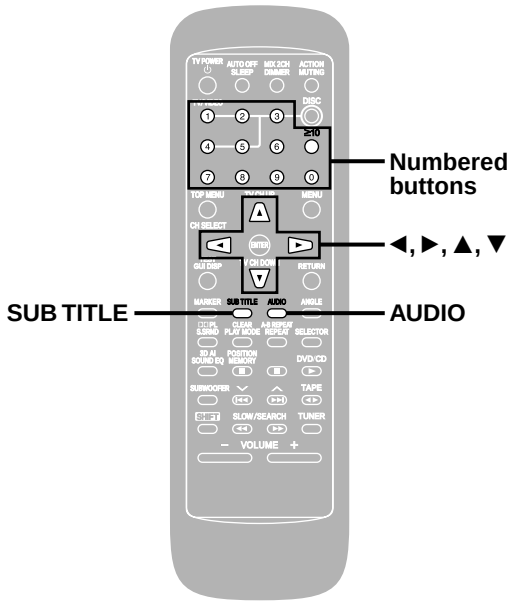
The soundtrack display appears.
The number changes each time you press the button.

### To change the subtitle language

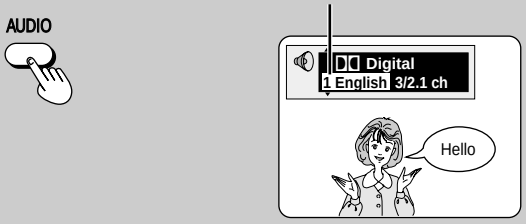
**Press [SUB TITLE] during play.**

The subtitle display appears.
The number changes each time you press the button.

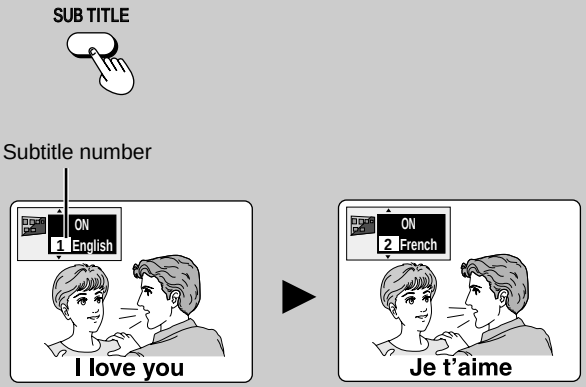
The number can also be changed with the cursor buttons (▲ or ▼) or the numbered buttons.
See page 26 for a key to language abbreviations.




**To change the soundtrack**




**To change the subtitle language**




### To clear/display the subtitles

① Press [SUB TITLE].
② Press [►].
③ Press [▲] or [▼] to select "ON" or "OFF".

### For your reference

Soundtrack and subtitle languages can be set before play with the unit's menus (➡ pages 50–51).
(Some discs are designed to start in a certain language despite the setting.)
You can only select the languages recorded on the disc.

**Note**

- Some discs allow changes to soundtrack and subtitle languages only by using the disc's menus.
- "–" or "– –" is displayed instead of the language number in circumstances such as when no language is recorded on the disc.
- In some cases, the subtitle language is not changed to the selected one immediately.
- (For areas except Australia, N.Z., the Middle East, South Africa, and Asia)
  If the subtitles overlap closed captions recorded on discs, turn the subtitles off.
- VCD
  Audio changes as follows each time you press [AUDIO]:
  LR → L → R
  This may not work with some discs.

## A Switching vocals on/off for karaoke discs

**DVD**

**Remote control only**

**① Press [AUDIO] during play.**
**② Press the cursor buttons [◄], [►] to highlight the illustrated icon.**
**③ Press the cursor buttons [▲], [▼] to turn the vocals on or off.**

- Solo
  OFF: No vocal
  ON: Vocal
- Duet
  OFF: No vocal
  V1+V2: Vocal 1 and 2
  V1: Vocal 1
  V2: Vocal 2

Choose "OFF" for karaoke.
Choose "V1" or "V2" to duet with the player.

Actual operations depend on the disc. Read the disc's instructions for details.

## Marking a position

DVD VCD CD

**Remote control only**

This feature allows you to mark up to 5 points on a disc so you can return to them easily at a later time.

### A To mark a position

**1 Press [MARKER] during play.**
The marker display appears.

**2 Press [ENTER] at the point you want to mark.**

---

**To mark another position**
① Press [MARKER] to display the marker display.
② Press the cursor buttons [◀] or [▶] to select another marker.
③ Press [ENTER].

### B Recalling a marked position

**1 Press [MARKER].**
The marker display appears.

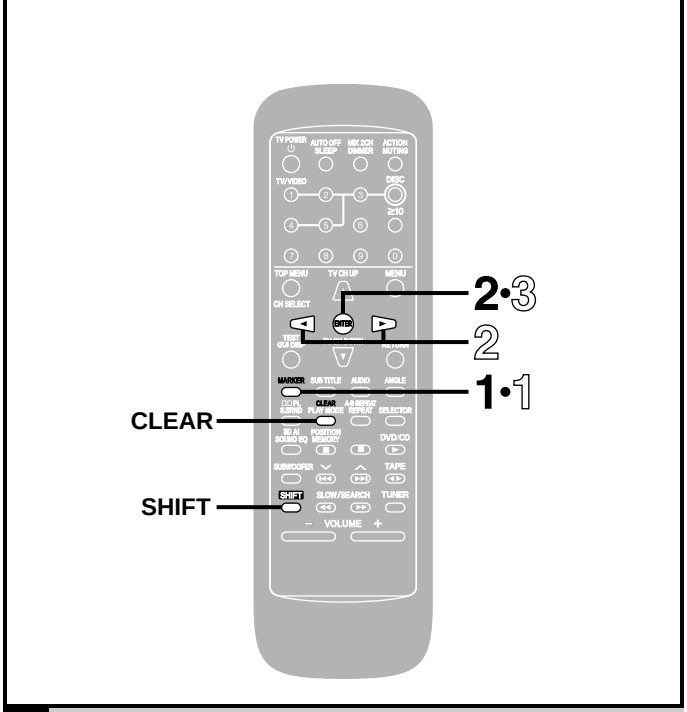
**2 Press the cursor buttons [◀] or [▶] to highlight the required marker.**

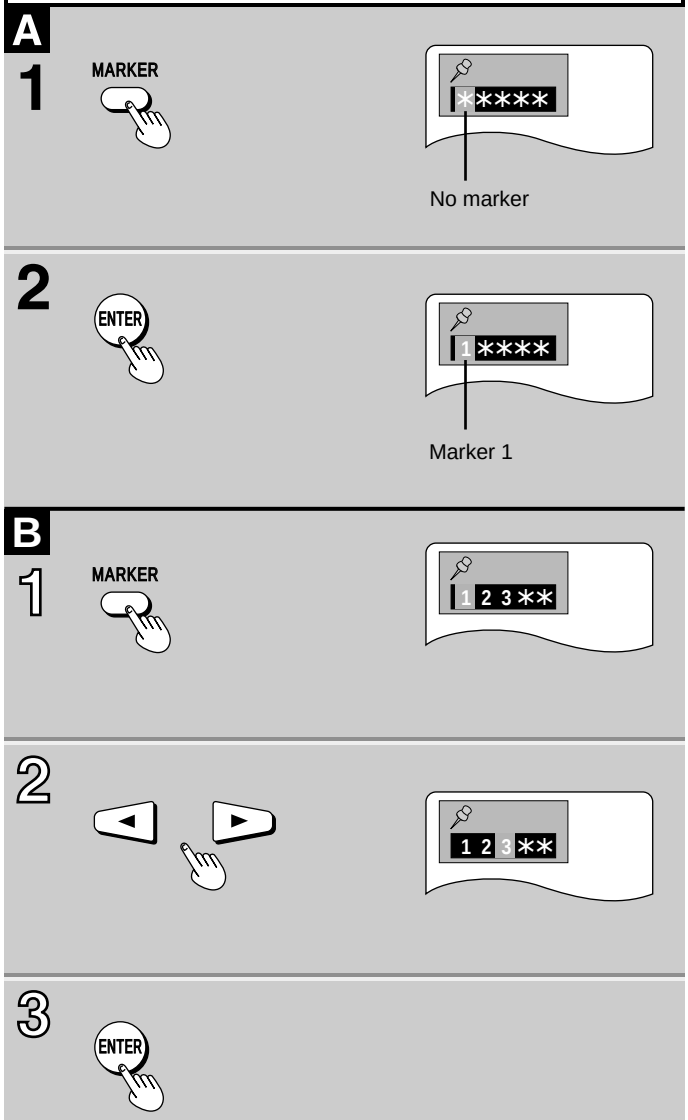
**3 Press [ENTER] to recall the position.**

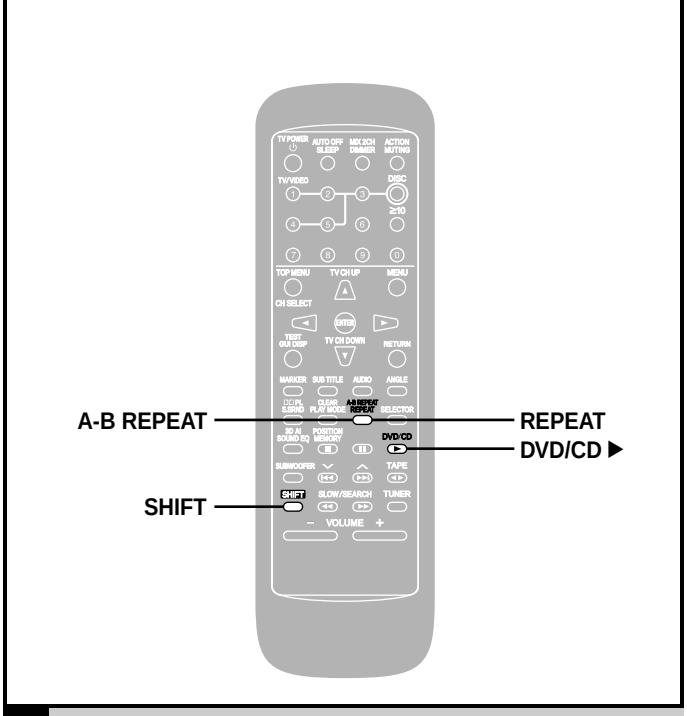
---

**To clear a marker**
① Press [MARKER] to display the marker display.
② Press the cursor buttons [◀] or [▶] to highlight the marker you want to clear.
③ Press [SHIFT] + [CLEAR].

**Note**
- This feature cannot be used;
  - If the play time for the disc is not displayed.
  - During program (➡ page 22) and random play (➡ page 23).
  - While CD MANAGER (➡ page 24) is on.
- Some subtitles may fail to appear around the marker (DVD).
- Markers clear in the following situations:
  - The unit is turned off.
  - The disc is changed or removed.
  - A source other than DVD/CD is selected.

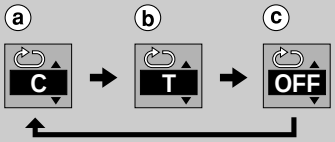


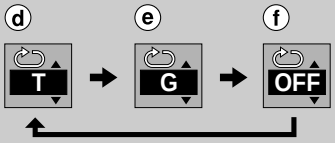



**A**

**DVD only**

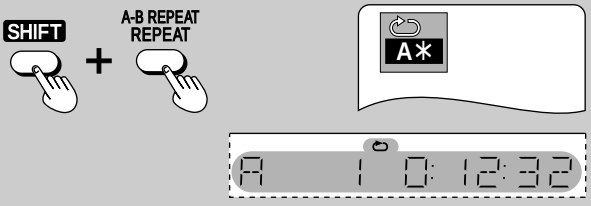



**MP3 disc only**

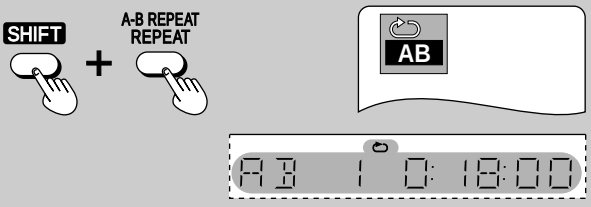



**B**

**1**




**2**




# Other methods of disc play

## Repeat function

**DVD** **VCD** **CD**

**Remote control only**

### A Repeat play

## Press [REPEAT] during play.

Each time you press the button:

**DVD**

ⓐ CHAPTER REPEAT (↻) : Current chapter is repeated.
↓
ⓑ TITLE REPEAT (↻) : Current title is repeated.
↓
ⓒ REPEAT OFF: Repeat mode is canceled.

**CD (MP3 disc)**

ⓓ TRACK REPEAT (↻) : Current track is repeated.
↓
ⓔ GROUP REPEAT (↻) : Current group is repeated.
↓
ⓕ REPEAT OFF: Repeat mode is canceled.

**Video CD, CD**

↻ : All tracks on the disc are repeated.
↓
Original display: Repeat mode is canceled.

**To cancel repeat play**

Press [REPEAT] to clear " ↻ ".

- When playing Video CDs and CDs, you can combine random play (➡ page 23) or the CD MANAGER (➡ page 24) and repeat play.

**Note**

- Repeat play does not work if the play time for the disc is not displayed.
- You cannot use repeat play to repeat an entire DVD or an entire MP3 disc.

**To repeat only your favorite tracks**

**Video CD and CD only**

① Program the tracks you want (➡ page 22).
② Press [DVD/CD ▶].
③ Press [REPEAT] to display " ↻ ".

### B Repeating a specific section (A-B REPEAT)

## 1 Press [SHIFT] + [A-B REPEAT] during play at the starting point (A).

## 2 Press [SHIFT] + [A-B REPEAT] at the finishing point (B).

**To cancel A-B repeat play**

Press [SHIFT] + [A-B REPEAT] to display "↻✱" on the screen.

**Note**

- This feature cannot be used if the play time for the DVD is not displayed.
- The player automatically determines the end of a title or track as point B.
- Subtitles may not appear around A and B. (DVD)

*Disc operations*

## Program play

VCD CD

**Remote control only**

You can select up to 24 tracks to play in the order you choose.

**Preparation:**

- Press [SELECTOR] to select “DVD/CD”.
- Ensure a Video CD or CD is in the play position tray.
  (Program play is not possible if the play position tray contains a DVD/MP3 disc or is empty.)

**1** **While stopped**

**Press [PLAY MODE] to select “PRGM”.**

Each time you press the button:

**PRGM** → RANDOM 1 DISC → RANDOM ALL DISC → Original display →

**2** **Press [DISC] and** (within 10 seconds) **[1]–[5] to select the disc.**

**3** **Select the track with the numbered buttons.**

To select tracks numbered 10 and over
Press [**≥10**] then the two digits.
e.g. To select track 21: [**≥10**] → [2] → [1].

Repeat steps 2 and 3 to program all tracks you want in the required order.
Step 2 is not necessary when selecting a track from the disc currently displayed.

**4** **Press [DVD/CD ▶].**

All the tracks are played in the selected order.

---

### To exit program mode

Press [PLAY MODE] to clear “PRGM”.
Program contents will be saved in the memory.

### You can do the following while the disc is stopped

Press [■] to cancel the resume function if it is on.

- **To check program contents**
  While “PRGM” is displayed (**A**), press [**I◀◀**, ∨] or [**▶▶I**, ∧].
  Each time you press a button, the disc number, track number and program order are displayed.
- **To add to the program**
  Repeat steps 2 and 3.
- **To cancel tracks**

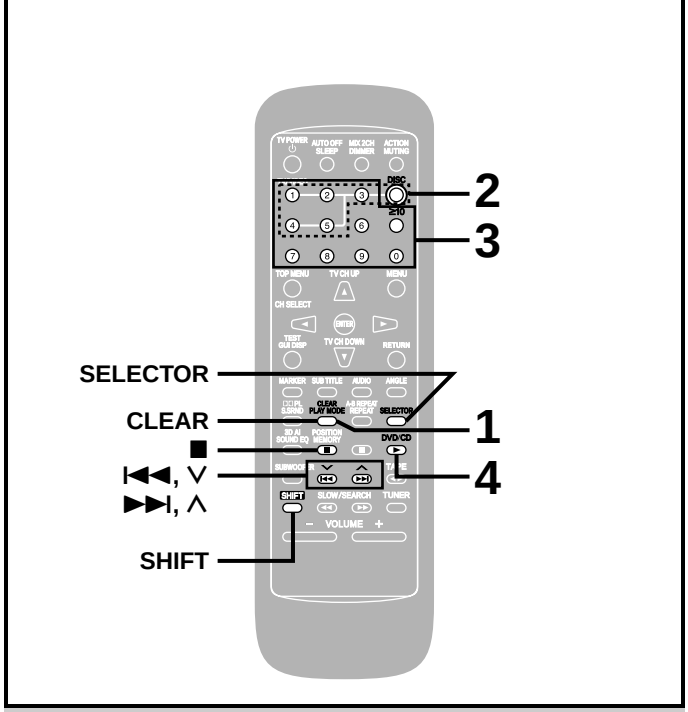
| | |
|---|---|
| **From the last programmed track** | Press [SHIFT] + [CLEAR]. |
| **A particular track** | While “PRGM” is displayed (**A**)<br>Select the track with<br>[**I◀◀**, ∨] or [**▶▶I**, ∧] then press [SHIFT] + [CLEAR]. |
| **All tracks** | Press [■].<br>“CLEAR” is displayed. |

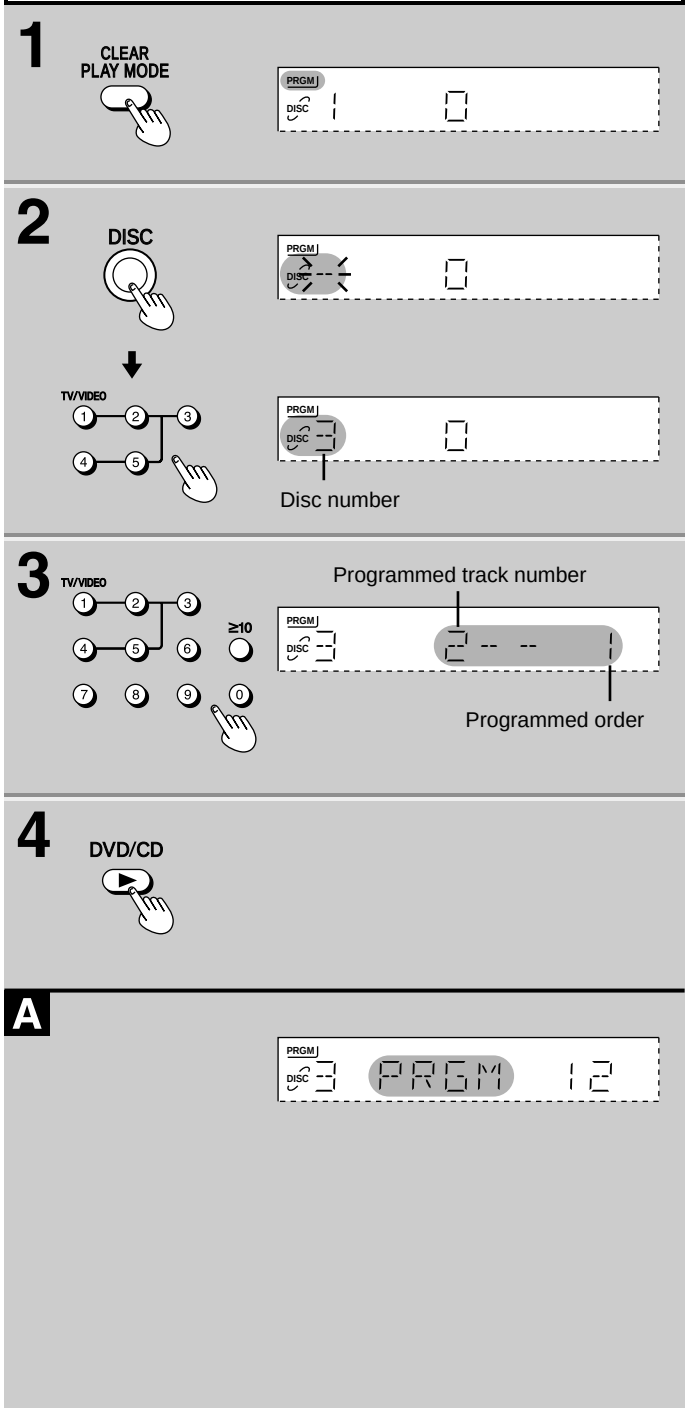
### When “CD FULL” is displayed

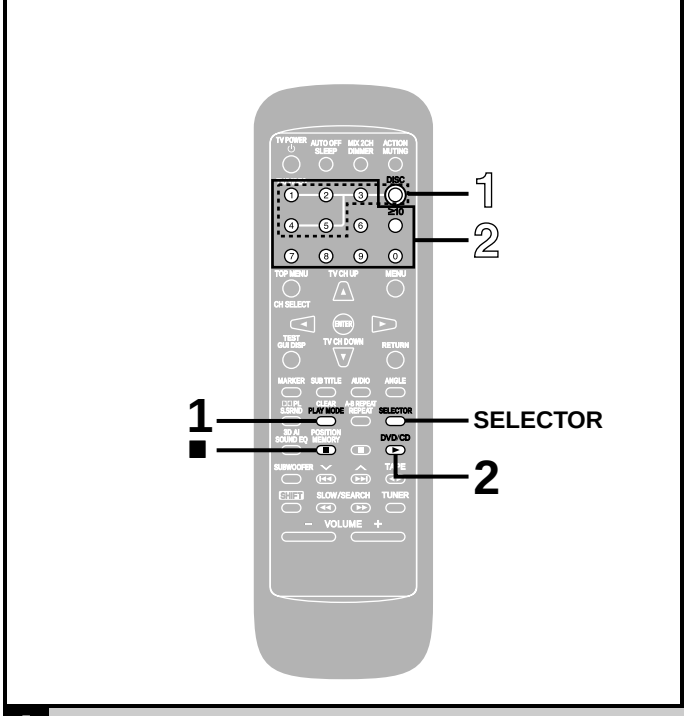
24 tracks have been programmed. No further tracks can be programmed.

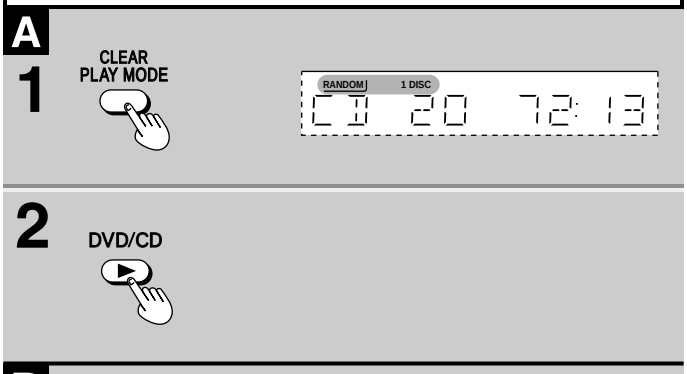
**Note**

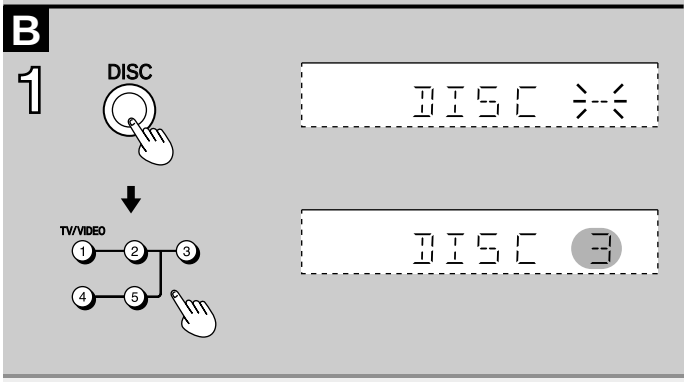
- Discs and tracks the unit cannot find can be programmed but are canceled during play. This is also the case if you program a DVD/MP3 disc.
- You can program individual tracks even if the disc is a Video CD with PBC. (➡ page 58).
- Skipping is done in the programmed order.

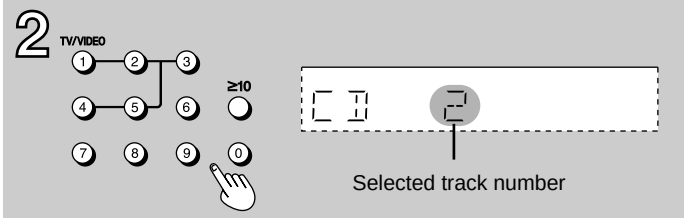





## A Random play

VCD CD

**Remote control only**

Plays all tracks on the selected disc or on all discs once each in random order.
Select one of two ways to play tracks.
1-DISC: Plays all the tracks on the current disc in random order.
ALL-DISC: Plays all the tracks on all loaded discs in random order.

**Preparation:**
- Press [SELECTOR] to select “DVD/CD”.
- Ensure a Video CD or CD is in the play position tray.
  (Random play is not possible if the play position tray contains a DVD/MP3 disc or is empty.)

**1 While stopped**

**Press [PLAY MODE] to select “RANDOM 1 DISC” or “RANDOM ALL DISC”.**

Each time you press the button:
PRGM → **RANDOM 1 DISC** → **RANDOM ALL DISC**
↑ Original display ←

**2 Press [DVD/CD ▶].**

Random play starts.
Random play is canceled when play stops.

---

**To stop**
Press [■].
Random play is also canceled. (The resume function is activated and if [DVD/CD ▶] is pressed, normal play resumes from that point.)

**Note**
- This function skips DVD and MP3 discs when ALL-DISC mode is selected.
- If the disc is a Video CD with PBC, menu play is automatically canceled during random play.
- You cannot skip to tracks already played.

## B Starting play from a specific track

VCD CD

**Remote control only**

**1 Press [DISC] and** (within 10 seconds) **[1]–[5] to select the disc.**

**2 After the first track starts playing**

**Select the track with the numbered buttons.**

To select track 10 or over, press [**≥10**] then the two digits.
Play starts from the selected track.

---

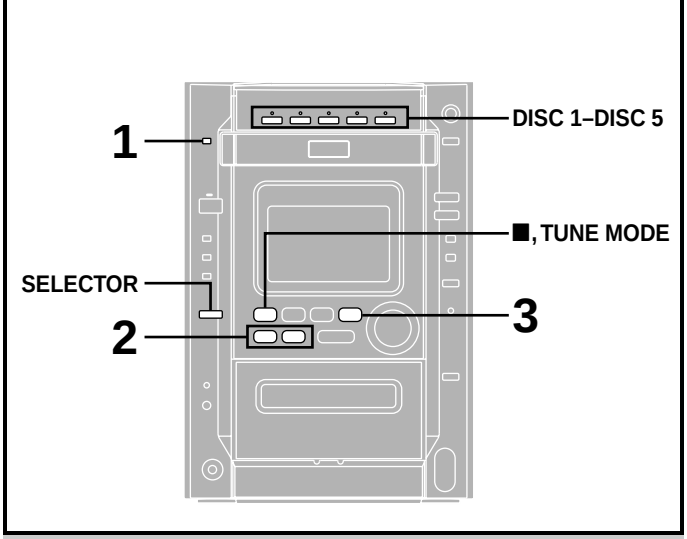
- This works only when stopped with some discs.
- **MP3 discs**
  Press [ENTER] after pressing the numbered buttons. (You do not have to press [**≥10**].)

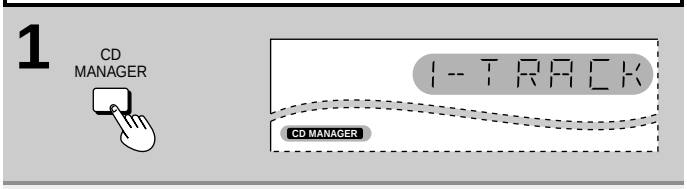
## Using the CD MANAGER

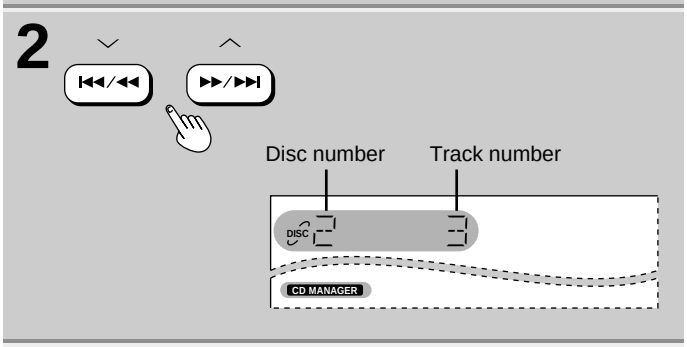
VCD CD

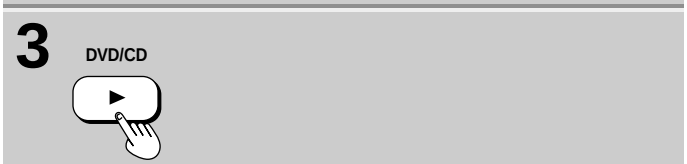
Use this function to select specific discs and tracks to play.
There are 3 modes.
1-track mode: Plays one selected track on the current disc.
1-disc mode: Plays the current disc.
All disc mode: Plays all loaded discs in succession from the current disc to the final disc※.
These modes make recording CDs easier (➡ page 38).

**Preparation:**
- Press [SELECTOR] to select "DVD/CD" .
- Ensure a Video CD or CD is in the play position tray.
  (You cannot use CD MANAGER if the play position tray contains a DVD/MP3 disc or is empty.)




### 1 While stopped

**Press [CD MANAGER] to select the desired mode.**

Each time you press the button:
1-TRACK → 1-DISC → ALL-DISC → NORMAL

1-TRACK: 1-track mode
1-DISC: 1-disc mode
ALL-DISC: All-disc mode
NORMAL: The function is canceled.

You can choose the disc after step 1.
Press [DISC 1]–[DISC 5] on the main unit to select the disc.
Remote control: Press [DISC] then (within 10 seconds) [1]–[5].

### 2 Only when you selected "1-TRACK" in step 1

**Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to select the track.**

Remote control: Select with the numbered button(s).
To select track 10 or over, press [≥**10**] then the two digits.
e.g. To select track 21: [≥**10**] → [2] → [1]

### 3 Press [DVD/CD ▶] to start play.

The CD MANAGER is canceled after play finishes.

---

**To stop**

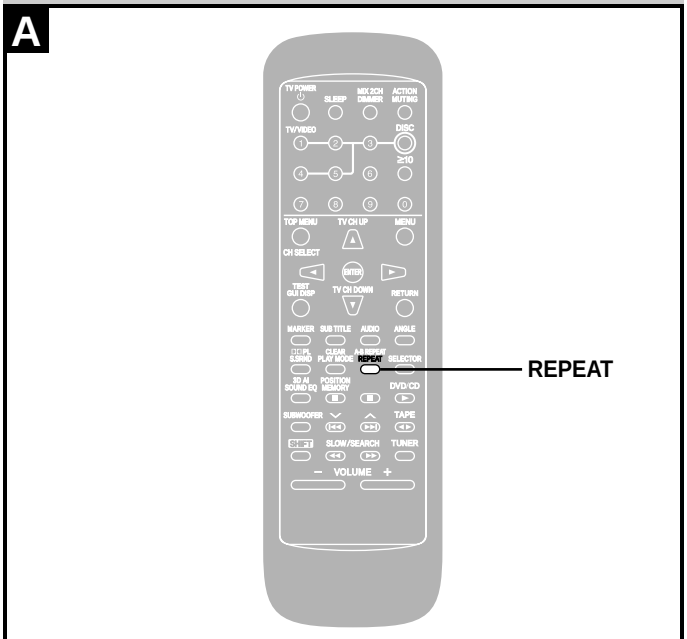
Press [■, TUNE MODE].
The CD MANAGER is canceled.
(The resume function is activated and if [DVD/CD ▶] is pressed, normal play resumes from that point.)

**※Final disc**

For example, if play starts from disc 4, disc 3 will be the "final disc".
Order of progression: Disc 4 → 5 → 1 → 2 → 3

**A You can use the CD MANAGER with repeat play.**

① Do steps 1–3 above.
② Press [REPEAT] on the remote control to display " ↻ ".




**Note**

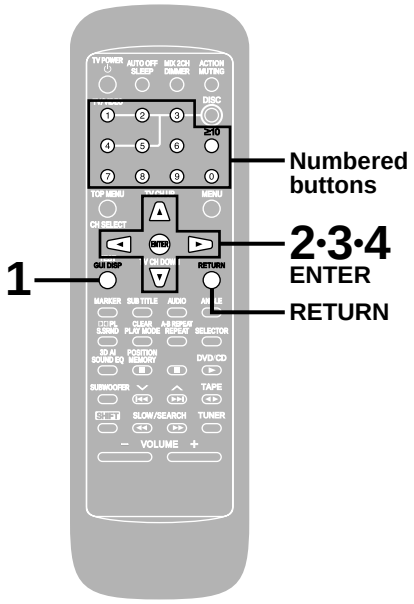
- If the disc is a Video CD with PBC, the PBC function is automatically canceled when you select modes other than NORMAL.
- This function skips DVD and MP3 discs.
- The CD MANAGER, program play (➡ page 22) and random play (➡ page 23) cannot be used together.

# Using On-Screen Menu Icons

**DVD**

**Remote control only**

On-Screen Menu Icons are menus that contain information about the disc or unit. These menus allow you to perform operations by changing this information.




## Common procedures

### 1 Press [GUI DISP].

Each time you press the button:

- Disc information (ⓐ)
- Progress indicator (ⓑ)
- Unit information (ⓒ)
- Original display (ⓓ)

The screen depends on the disc contents.

### 2 Unit information only

**While the leftmost icon is highlighted**

**Press [▲] , [▼] to select the menu.**

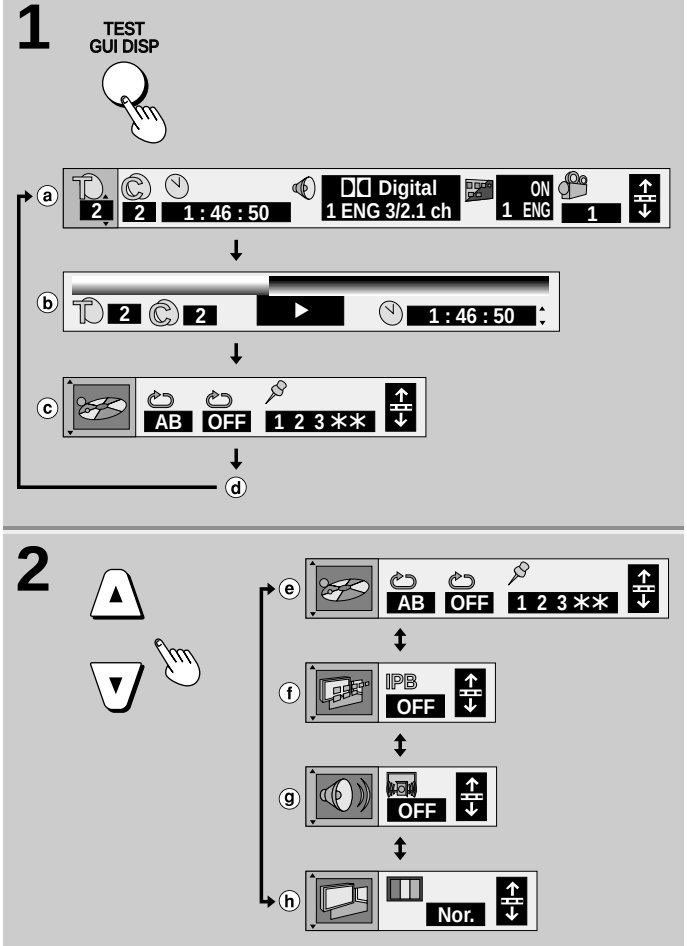
Each time you press the button:

- Play menu (ⓔ)
- Display menu (ⓕ)
- Audio menu (ⓖ)
- Video menu (ⓗ)

### 3 Press [◄], [►] to select the item.

### 4 Press [▲], [▼] to select the setting.

Items with "▲" or "▼" above and below can be changed by [▲], [▼]. Other items use different buttons. See pages 26 and 27 for details.




---

**For your reference**

- Depending on the condition of the unit (playing, stopped, etc.) and the type of software you are playing, there are some items that you cannot select or change.
- Press [ENTER] if the setting does not change after pressing [▲], [▼].
- When numbers are displayed (e.g. title No.), the numbered buttons are also effective for setting. When numbers are entered with the numbered buttons, press [ENTER] to register the setting.

**To clear the icons**

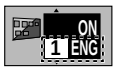
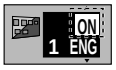
Press [RETURN] until the menus disappear.

**To change the position of the menus**

You can lower the position of the icons on the screen if they are cut off for some reason.

1. Press [◄], [►] to select the rightmost icon.
2. Press [▲], [▼] to move the icons.
   (There are 5 positions.)

## Disc information

| Icon | Content |
|---|---|
| | **Title number** |
| | **Chapter number** |
| | **Time**<br>• Press [▲], [▼] to show the elapsed play time or remaining time for the title.<br>• Select a position to start play by specifying a time with the numbered buttons. |
| | **Soundtrack language**<br>(See **A** at right for language abbreviations.) |
| | **Audio signal type**<br>(See **B** at right for details.) |
| | (Karaoke DVD only)<br>**Karaoke vocal on/off**<br>Solo: OFF or ON<br>Duet: OFF, V1 + V2, V1 or V2 |
|  | **Subtitle language**<br>(See **A** at right for language abbreviations.) |
|  | **Subtitles on/off**<br>ON↔OFF |
| | **Angle number** |

### A Audio/Subtitle language

| | | |
|---|---|---|
| ENG: English | SVE: Swedish | CHI: Chinese |
| FRA: French | NOR: Norwegian | KOR: Korean |
| DEU: German | DAN: Danish | MAL: Malay |
| ITA: Italian | POR: Portuguese | VIE: Vietnamese |
| ESP: Spanish | RUS: Russian | THA: Thai |
| NLD: Dutch | JPN: Japanese | ✳: Others |

### B Signal type/data

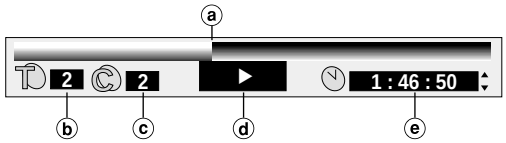
LPCM/Digital: Signal type
k (kHz): Sampling frequency
b (bit): Number of bits
ch (channel): Number of channels

Example:
3/2.1ch

- .1: Subwoofer signal
- 0: No surround
  1: Mono surround
  2: Stereo surround (left/right)
- 1: Center
  2: Front left + Front right
  3: Front left + Front right + Center

## Progress indicator

Indicates how far you have played through an item.




ⓐ Current position
ⓑ Title number
ⓒ Chapter number
ⓓ Condition – play, pause, or slow/search
ⓔ Time (When the elapsed play time is displayed)
- Press [▲], [▼] to show the elapsed play time or remaining time for the title.
- Select a position to start play by specifying a time with the numbered buttons.

## Unit information

### Play menu

| Icon | Content |
|---|---|
| | **A-B repeat** (➡ page 21)<br>[ENTER] (start point)→[ENTER] (finish point)<br><br>To cancel<br>[ENTER] |
| | **Repeat play** (➡ page 21)<br>C (Chapter)↔T (Title)↔OFF |
| | **Marker** (➡ page 20)<br>You can mark up to 5 positions to play again.<br>**[ENTER] so the unit is ready to accept markers.** |
| | To mark a position<br>[ENTER] (at the desired point)<br><br>To mark another position<br>[◀], [▶]→[ENTER] |
| | To recall a marker<br>[◀], [▶]→[ENTER] |
| | To erase a marker<br>[◀], [▶]→[SHIFT] + [CLEAR] |

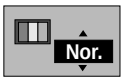
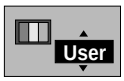
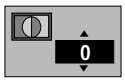
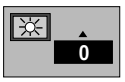
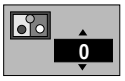
### Display menu

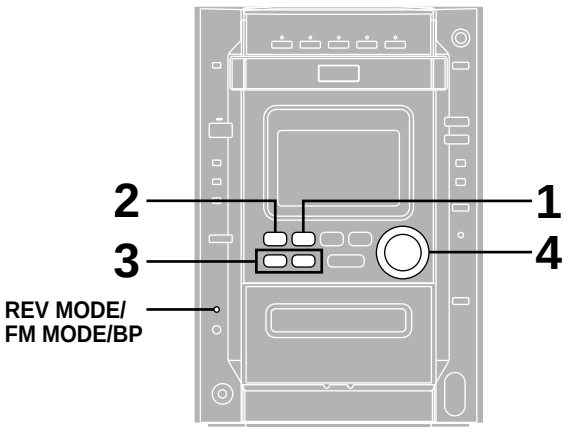
| Icon | Content |
|---|---|
| | **IPB display** (➡ page 58)<br>Displays the picture type (I/P/B) in the still picture mode.<br>ON ↔ OFF |

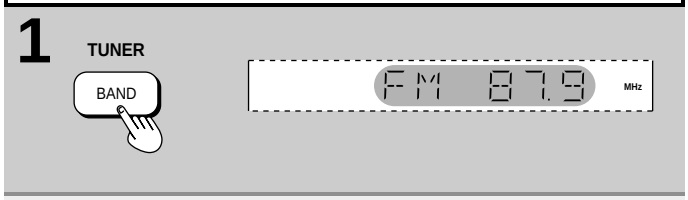
### Audio menu

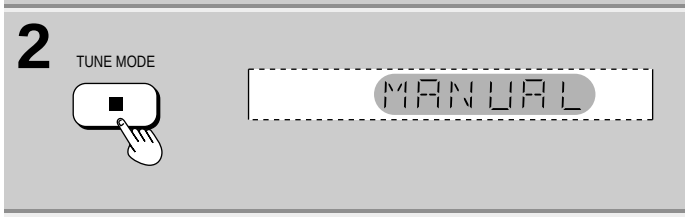
| Icon | Content |
|---|---|
| | (Dolby Digital, 3-channel or over only)<br>**Dialogue Enhancer**<br>The volume of the dialogue from the center channel is raised when you select “ON”.<br>ON ↔ OFF<br>(Actual result depends on discs) |

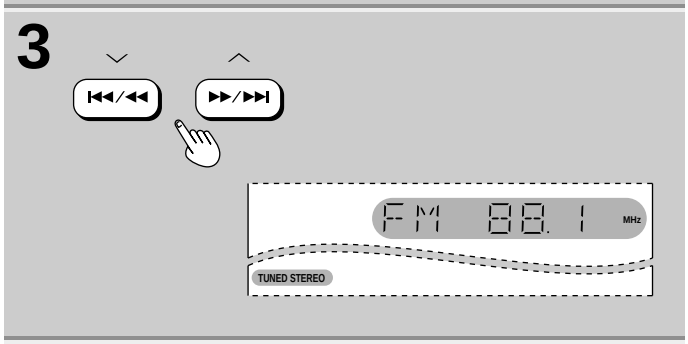
### Video menu

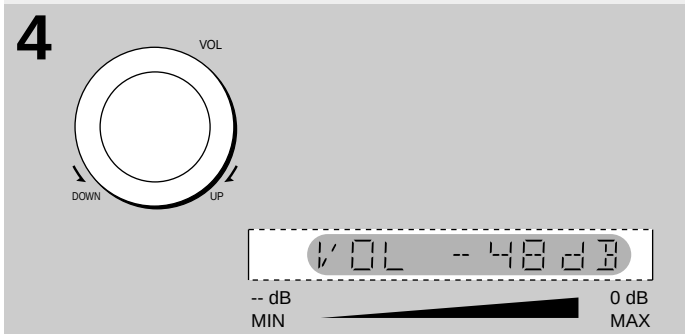
| Icon | Content | |
|---|---|---|
|  | **Digital picture mode** DVD VCD<br>Nor.: Normal mode<br>Cin.1/Cin.2: Cinema mode (➡ page 18)<br>User: User mode (➡ see below) | |
|  | The following items are also displayed when you select “User”. | |
| |  | **Contrast** (–7 to +7)<br>Increases the contrast between white and black parts of the picture. |
| |  | **Brightness** (0 to +15)<br>Brightens the picture. |
| |  | **Color** (–7 to +7)<br>Adjust the shade of the picture’s color. |

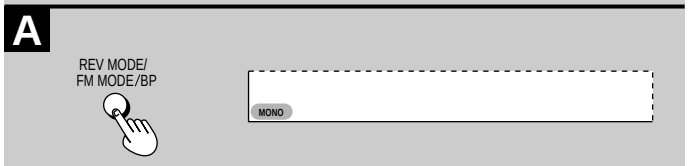



# The radio: manual tuning

Radio stations can be tuned manually by selecting the station's frequency or they can be preset into channels to make it easy to tune (➡ page 29).

## 1 Press [TUNER, BAND] to select "FM" or "AM".

The unit comes on automatically.
Each time you press the button:
FM ↔ AM

## 2 Press [■, TUNE MODE] to select "MANUAL".

Each time you press the button:
MANUAL ↔ PRESET

## 3 Press [⏮/◀◀, ∨] or [▶▶/⏭, ∧] to select the frequency of the required station.

If you press and hold [⏮/◀◀, ∨] or [▶▶/⏭, ∧] for a moment, the frequency starts changing automatically and stops when a station is found. It may also stop if there is outside interference.
Press and hold [⏮/◀◀, ∨] or [▶▶/⏭, ∧] again to restart. You can also stop the frequency changing by pressing [⏮/◀◀, ∨] or [▶▶/⏭, ∧].

"TUNED" is displayed when a radio station is tuned.
"STEREO" is displayed when a stereo FM broadcast is being received.

## 4 Adjust the volume.

### A If noise is excessive in FM

## Press [REV MODE/FM MODE/BP] to display "MONO".

This mode improves sound quality if reception is weak but broadcasts are heard in monaural.
Press [REV MODE/FM MODE/BP] again to cancel the mode.
The mode is also canceled when you changed the frequency.

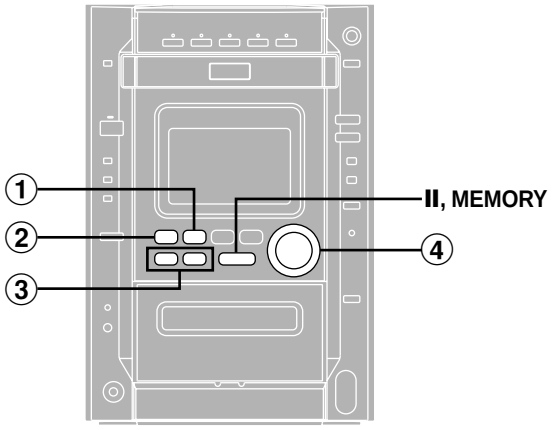
Leave "MONO" off for normal listening.
Stereo and monaural broadcasts are automatically played as they are received.

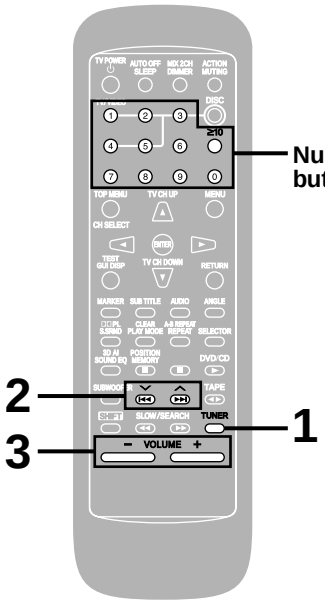
### Allocation settings (For areas except Australia and N.Z.)

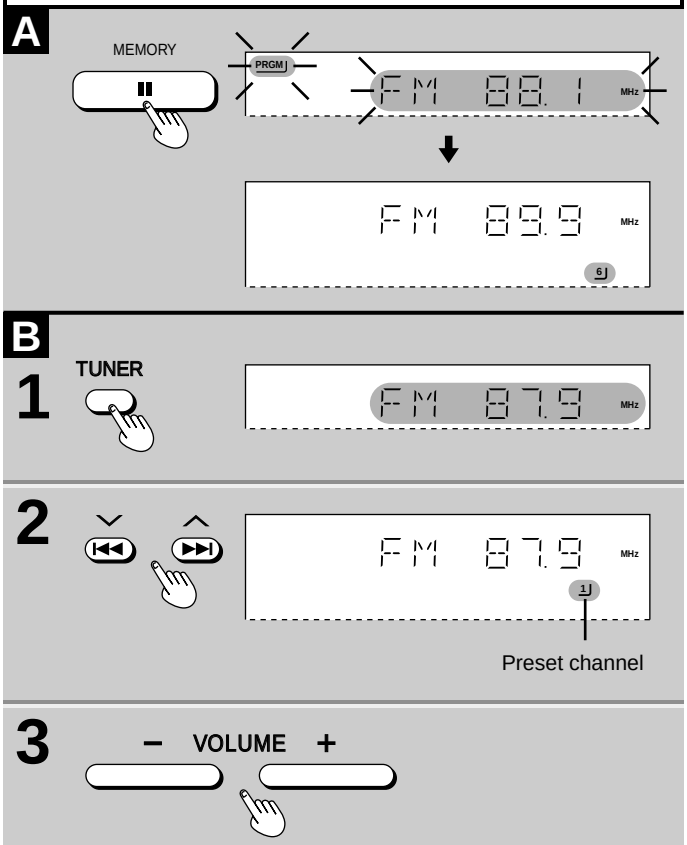
Each country allocates broadcast bands according to their particular system.
**For Latin America, the Middle East, South Africa, and Asia:**
This unit can receive AM broadcasts allocated in 10- or 9-kHz steps.
**For U.S.A. and Canada:**
This unit can receive FM broadcasts allocated in 0.1- or 0.2-MHz steps.

**To change the step**

① Press and hold [TUNER, BAND].
After a few seconds the display changes to a flashing display of the current minimum frequency.
② Continue to hold [TUNER, BAND] down.
When the minimum frequency changes, release the button.
To return to the original step, repeat the above steps.




# The radio: preset tuning

There are two methods of presetting stations.

**Automatic presetting:** The stations the tuner can receive are preset.

**Manual presetting:** You can select the stations to preset and the order they are preset in.

Up to 12 stations can each be set in the FM and AM bands.

## A Automatic presetting

Do the following once each for FM and AM.

**Preparation:**
Tune to the frequency where presetting is to begin (➡ page 28).

### Press and hold [II, MEMORY].

Release the button when the frequency starts changing.
The tuner presets the stations it can receive into the channels in ascending order. When finished, the last station memorized is tuned in.

### Manual presetting

Preset the stations one at a time.

1. **Press [TUNER, BAND] to select “FM” or “AM”.**
2. **Press [II, MEMORY] then press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to tune to the required station.**
3. **Press [II, MEMORY] then press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to select a preset channel.**
4. **Press [II, MEMORY].**

The station occupying a channel is erased if another station is preset in that channel.

## B Selecting channels

**Remote control:**

### 1 Press [TUNER] to select “FM” or “AM”.

The unit comes on automatically.
Each time you press the button:
FM ↔ AM

### 2 Press [I◀◀, ∨] or [▶▶I, ∧] to select the channel.

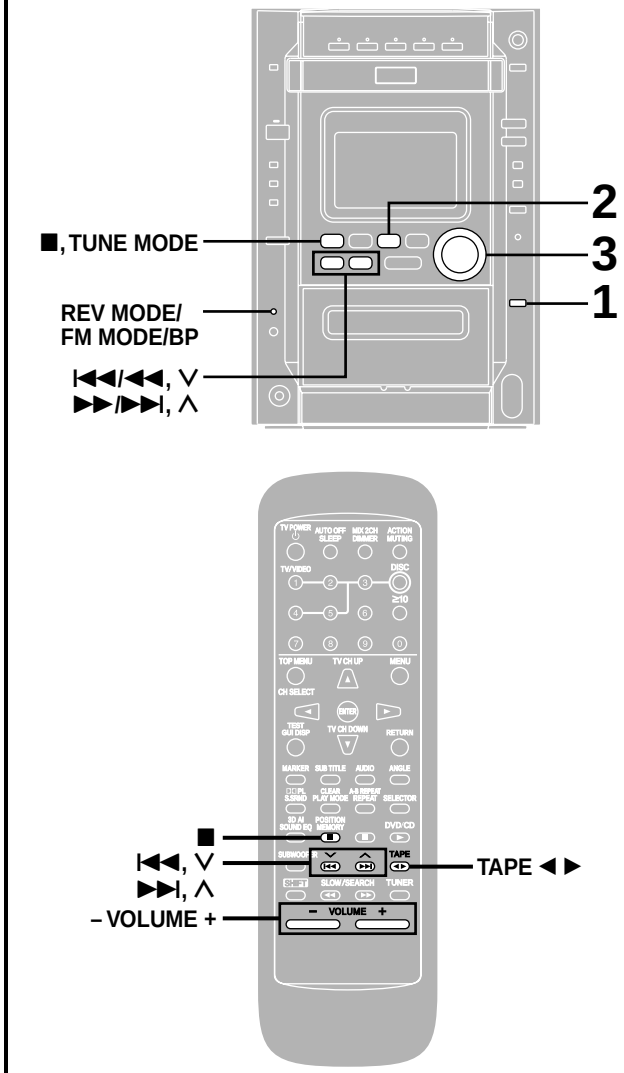
You can select the channel with the numbered button(s).
To select channel 10 or over
Press [≥**10**] then the two digits.

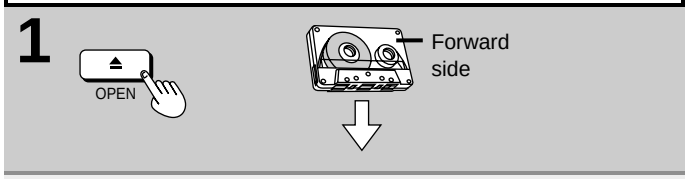
### 3 Adjust the volume.

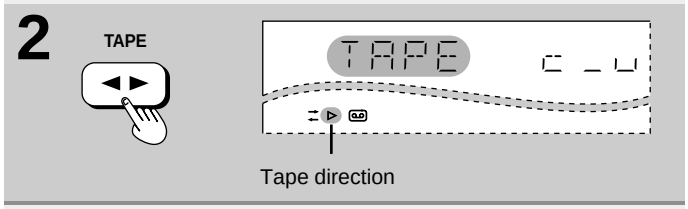
---

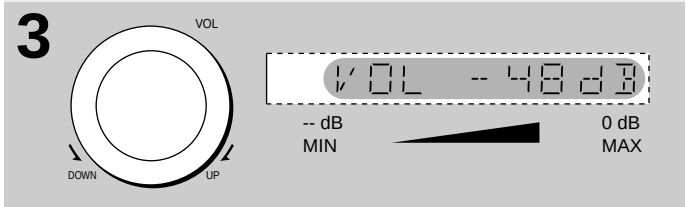
**Main unit:**

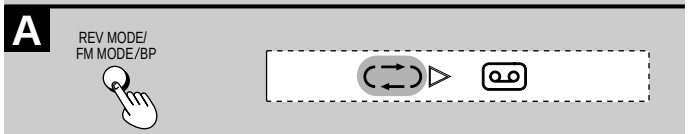
① Press [TUNER, BAND] to select “FM” or “AM”.
② Press [■, TUNE MODE] to select “PRESET”.
Each time you press the button:
MANUAL ↔ PRESET
③ Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to select the channel.
④ Adjust the volume.



## Cassette tapes

### 1 Press [⏏ OPEN] and insert the cassette.

The unit comes on automatically.
Close the holder by hand.

### 2 Press [TAPE ◄ ►] to start play.

Every time you press the button: ► ↔ ◄
►: Forward side is played.
◄: Reverse side is played.

### 3 Adjust the volume.

---

**To stop the tape**
Press [■, TUNE MODE] (remote control: [■]).

**A To select the reverse mode**
While TAPE is selected as the source
Press [REV MODE/FM MODE/BP].
Every time you press the button: ⇄ → ⇄ → (⇄)

⇄ : One side is played.
⇄ : Both sides are played. (forward → reverse)
Play stops at the end of the reverse side.
(⇄) : Both sides are played repeatedly until [■, TUNE MODE] (■) is pressed.

**B Finding a place on a tape**

**To fast-forward and rewind**
Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] while the tape is stopped.
Remote control: [I◀◀, ∨] or [▶▶I, ∧].
To resume play, press [TAPE ◄ ►].

**To find the beginning of a track** (TPS: Tape program sensor)
Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] during play.
Remote control: [I◀◀, ∨] or [▶▶I, ∧].

Each press increases the number of tracks skipped, up to a maximum of 9.
The first skip backward takes you to the beginning of the current track.

| Tape direction | backward | forward |
|---|---|---|
| ▷ | I◀◀/◀◀, ∨ (I◀◀, ∨) | ▶▶/▶▶I, ∧ (▶▶I, ∧) |
| ◁ | ▶▶/▶▶I, ∧ (▶▶I, ∧) | I◀◀/◀◀, ∨ (I◀◀, ∨) |

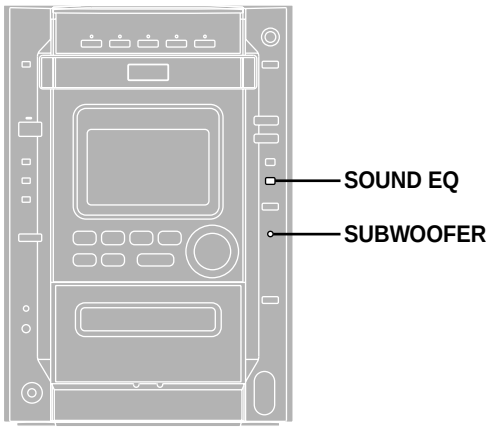
**Note**
TPS may not operate correctly in the following situations:
- If the interval between tracks is less than 4 seconds.
- If there is noise between tracks.
- If there are silent segments within tracks.

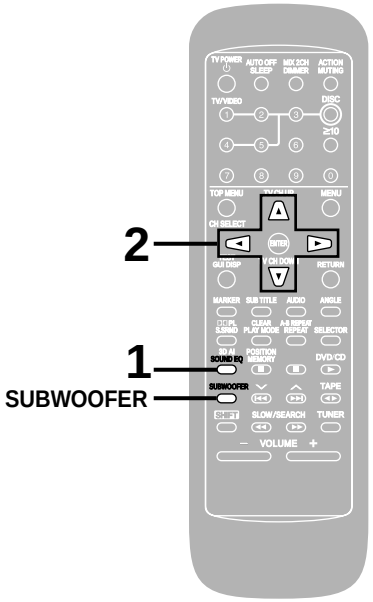
**Cassette tape selection and care**

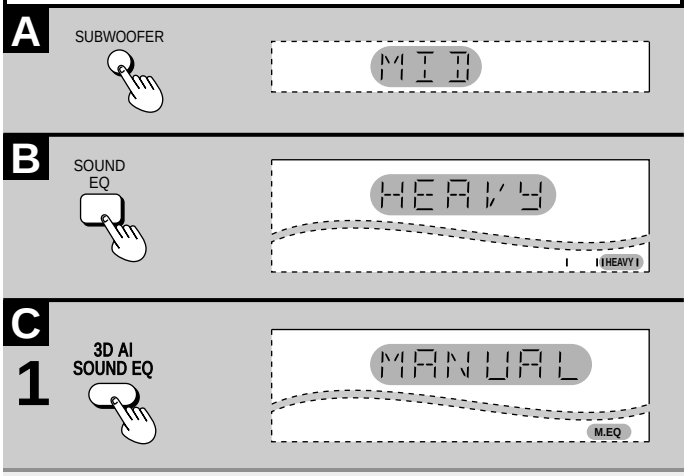
The unit can correctly play the following types. It identifies the type automatically.

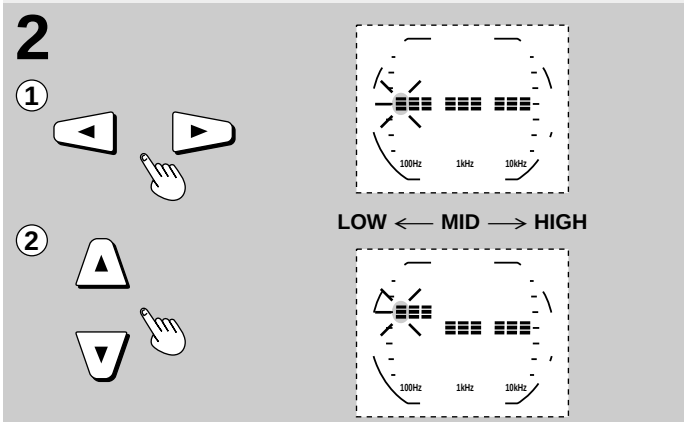
| | |
|---|---|
| Normal position/TYPE I | ✔ |
| High position/TYPE II | ✔ |
| Metal position/TYPE IV | ✔ |

- Tapes exceeding 100 minutes are thin and can break or get caught in the mechanism.
- Tape slack can get caught up in the mechanism and should be wound up before the tape is played.
- Endless tapes can get caught up in the deck's moving parts if used incorrectly. Use tapes appropriate to this unit's auto-reverse mechanism.




## A Adjusting the bass

### Press [SUBWOOFER].

- **When listening through speakers**

Each time you press the button:
MID (medium) → MAX (high) → Light off (flat)

- **When listening through headphones**

Each time you press the button:
Light on (on) ↔ Light off (off)

## B Changing sound field and quality

### Press [SOUND EQ] to select a setting.

Each time you press the button:

| | |
|---|---|
| HEAVY: | Adds punch to rock. |
| CLEAR: | Clarifies higher sounds. |
| SOFT: | For background music. |
| DISCO: | Reverberates sound to make you feel like you were in a disco. |
| LIVE: | Makes vocals more alive. |
| HALL: | Expands sound to make you feel like you were in a hall. |
| MANUAL (M.EQ): | Create your own effects (➡ below). |
| AI EQ: | Adjust sound with the acoustic image equalizer (➡ page 32). |
| FLAT: | Canceled (no effect is added). |

Remote control: Press [SOUND EQ].

**Note**

SOUND EQ and SUPER SOUND EQ (➡ page 32) cannot be used at the same time.

## C Using the manual equalizer (MANUAL)

Create your own sound quality effects.

**Remote control:**

**1 Press [SOUND EQ] to select “MANUAL”.**

**2 (Within 10 seconds)**
**Change the sound quality with the cursor buttons.**

① Select the sound range to be adjusted with [◀] or [▶].
② Adjust the level with [▲] or [▼].

Repeat step 2 to set the desired sound quality.
The original display is restored on the display panel in about 10 seconds.

---

**To cancel**

Press [SOUND EQ] to select “FLAT”.

The changes you make are stored and automatically recalled the next time you select “MANUAL”.

## Using the acoustic image equalizer (AI EQ)

Achieve subtle sound quality settings with the soft, sharp, heavy, and light coordinates, and add surround effects with the three-dimensional settings.

### Turning AI EQ on

Main unit: **Press [SUPER 3D AI].**
Remote control: **Press [SHIFT] + [3D AI].**
The current AI EQ mode is displayed.
Press again to select another 3D level.
Each time you press the button:
AI EQ → 3D AI 1 → 3D AI 2

3D AI 1: Adds a surround effect to the AI EQ.
3D AI 2: Adds a stronger surround effect to the AI EQ.

### A Adjusting the sound quality

**Remote control only**

**1 Turn on AI EQ and select the level.**

**2 (Within 10 seconds)**
**Change the sound quality with the cursor buttons.**
Adjust softness and sharpness with [◄] or [►].
Adjust heaviness and lightness with [▲] or [▼].

The original display is restored on the display panel in about 10 seconds.

The level and changes you make are stored and recalled the next time you turn the AI EQ on as described above, or select it with [SOUND EQ] (➡ page 31).

---

**To cancel**
Press [SOUND EQ] to select “FLAT”.

**Note**
- “3D AI 1” and “3D AI 2” cannot be selected when you are playing a DVD (except for MIX 2CH mode, ➡ page 34) or listening to the radio.
- “3D AI 1” and “3D AI 2” cannot be selected while a surround system (➡ page 33) is on.

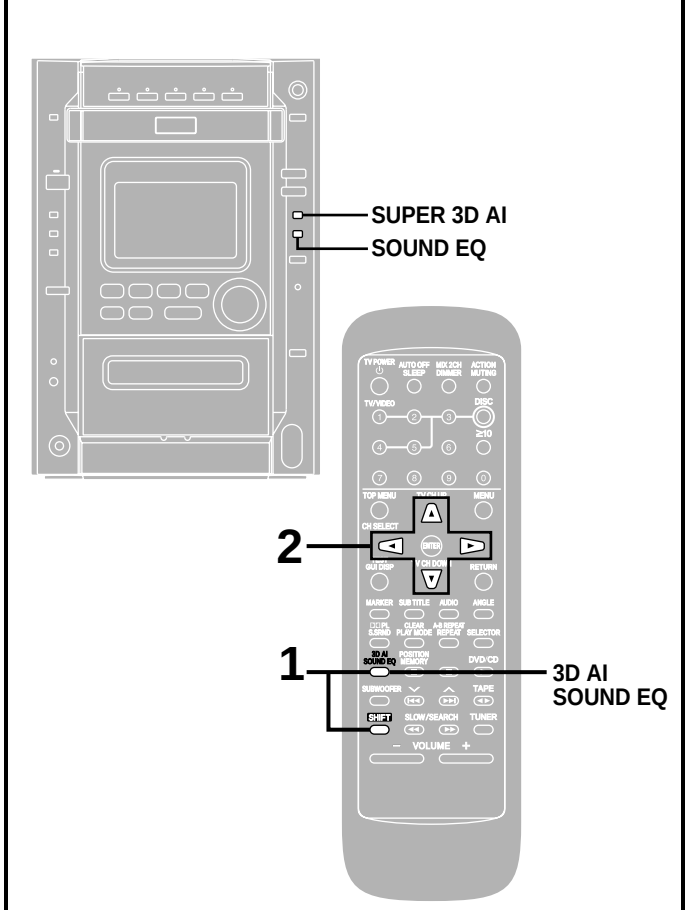
## B Using the super sound equalizer

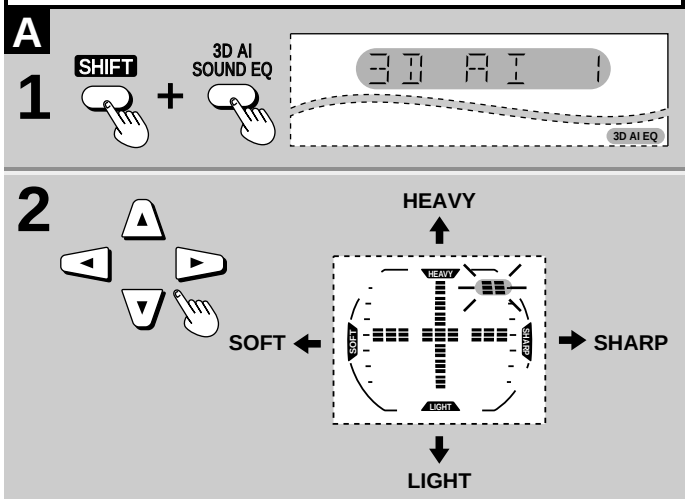
Turning on the super sound equalizer gives you a more powerful sound.

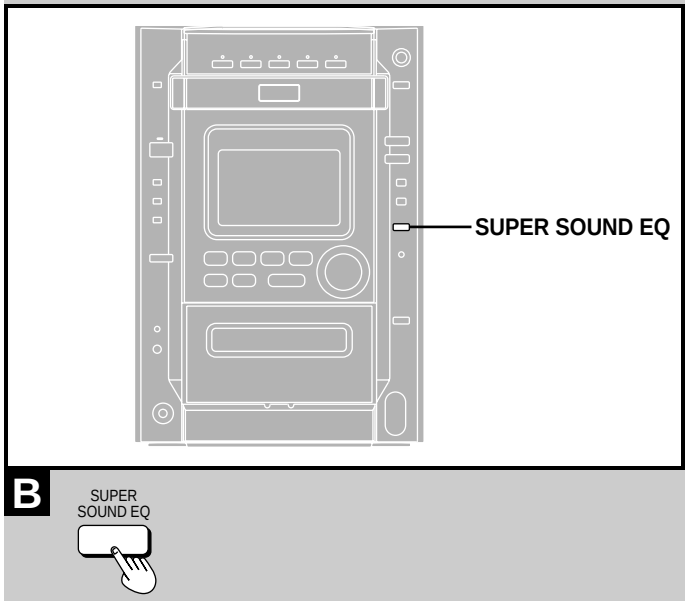
**Press [SUPER SOUND EQ].**
The indicator lights.

---

**To cancel**
Press [SUPER SOUND EQ] so the indicator turns off.



# Enjoying surround sound

The following chart gives a summary of this unit's surround features.

**Note**

- All the features are only effective if speakers are used. No discernible effect will be heard through headphones.
- None of the features are effective when radio is selected as the source.
- You may experience a reduction in sound quality when these surround systems are used with some sources. If this occurs, turn the surround system off.

| Surround system | Features | Software |
|---|---|---|
| **DOLBY DIGITAL** (➡ page 34) | • Dolby Digital is a discrete 5.1 (6) channel surround system developed for cinema use. The sound signals in Dolby Digital format are compressed to 1/10 their original size, allowing an entire movie to be recorded on a single DVD.<br>• This unit automatically recognizes DVDs that have been recorded with Dolby Digital.<br>• Not all Dolby Digital sources are recorded with 5.1 (6) channels. Some sources marked Dolby Digital may be recorded in Dolby Surround, a 2 channel system. | Software encoded with Dolby Digital can be identified with this mark.<br>DOLBY DIGITAL<br>• DVD |
| **DOLBY PRO LOGIC** (➡ page 34) | Dolby Pro Logic is a decoding system that was developed to get a better sense of presence from sources encoded with Dolby Surround. The balance of sound has been improved by the addition of a separate center speaker channel. | Software encoded with Dolby Surround can be identified with this mark.<br>DOLBY SURROUND<br>• DVD<br>• Video CD, CD<br>• Laser Disc<br>• Video tape |
| **SUPER SURROUND** (➡ page 36) — **MOVIE** | • This mode adds surround effects to movie software that hasn't been recorded with the above systems.<br>• You can adjust the volume of the surround speakers to get the best surround effect. | Any stereo sound source except for the radio. |
| **MUSIC** | • This mode adds surround effects to stereo sources.<br>• You can adjust the volume of the surround speakers to get the best surround effect. | |

Manufactured under license from Dolby Laboratories.
"Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories.

See page 35 for speaker level adjustments.

## A DOLBY DIGITAL

### Play a DOLBY DIGITAL source.

"□□DIGITAL" is displayed.

---

**B To down-mix Dolby Digital (5.1 ch) signals to 2 channels**

**Remote control only**

Press [SHIFT] + [MIX 2CH].
To cancel, press [SHIFT] + [MIX 2CH] again.

## C DOLBY PRO LOGIC

### 1 Press [□□PL].

The button lights.

Remote control: Press [SHIFT] + [□□PL].

### 2 Playback a Dolby Surround source.

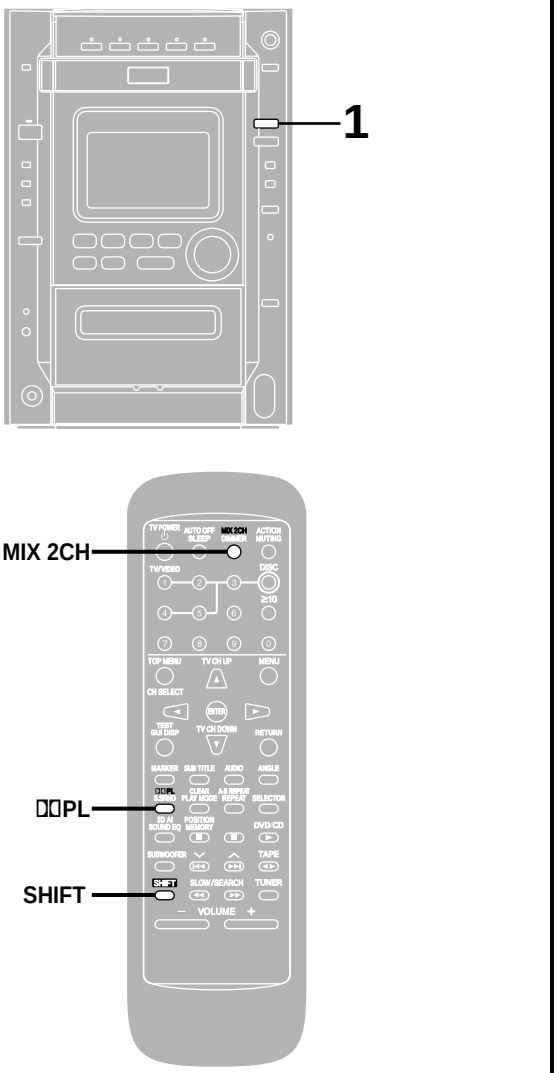
---

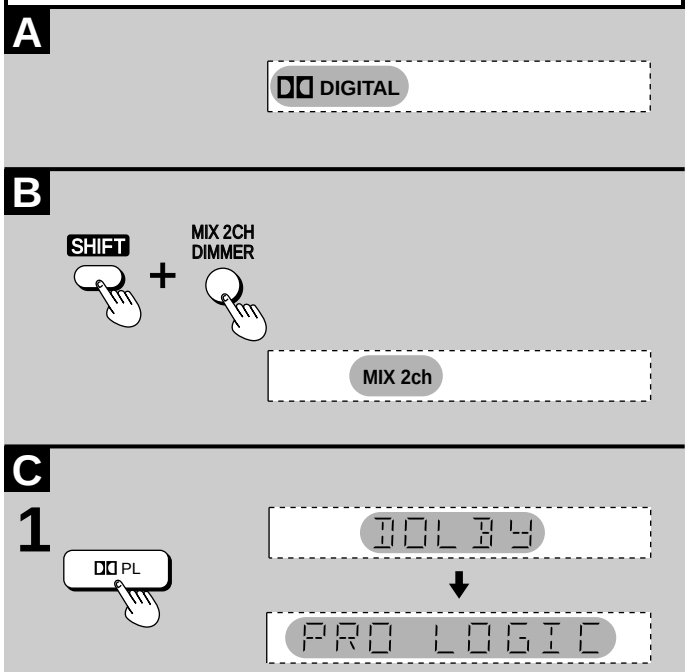
**To cancel**

Press [□□PL] ([SHIFT] + [□□PL]).
The light turns off.

**Note**

Turn Dolby Pro Logic off when playing a DVD recorded with 5.1 channel Dolby Digital. The surround effects will not be reproduced correctly if this is left on.

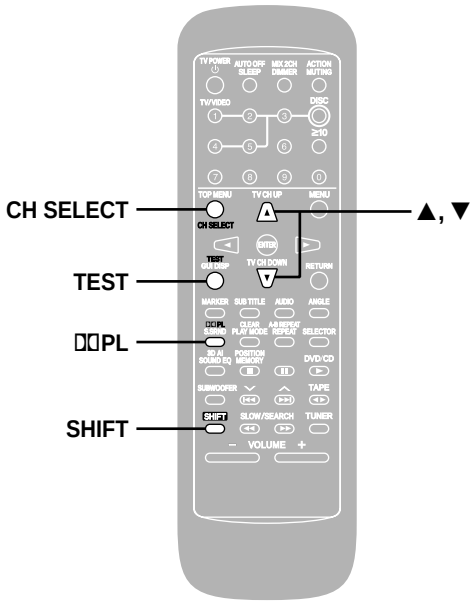


## Speaker level adjustments

If the level of the speakers appears to be different while listening to a source, adjust the level of the speakers to the same apparent level.

**Remote control only**



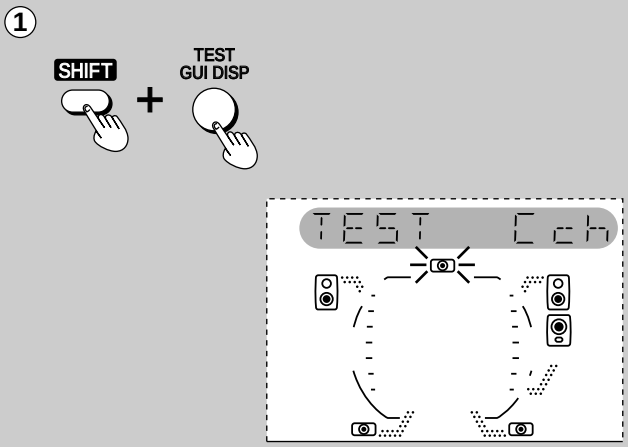

### Preparation

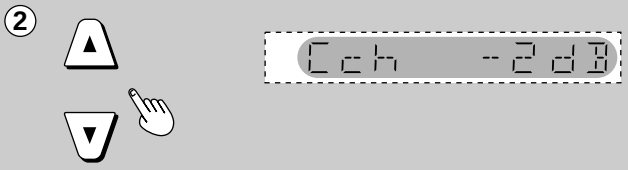
**DOLBY DIGITAL:** Turn off the other surround systems.
**DOLBY PRO LOGIC:** Press [SHIFT] + [□□PL] to turn the light on.

① Press [SHIFT] + [TEST] to output a test signal.
Lch: Front left
Cch: Center
Rch: Front right
RSch: Right surround
LSch: Left surround
- The surround channel for Dolby Pro Logic is monaural so the indicator appears as “Sch” instead.

② Press [▲] (to increase) or [▼] (to decrease).

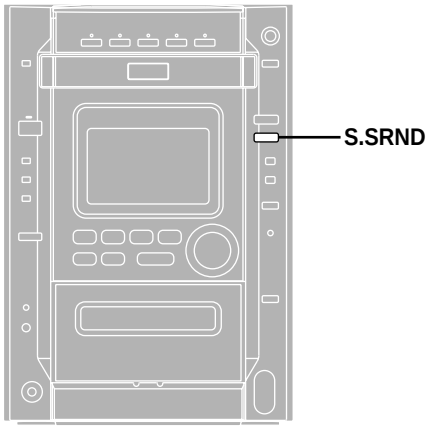
To stop the test signal, press [SHIFT] + [TEST] again.

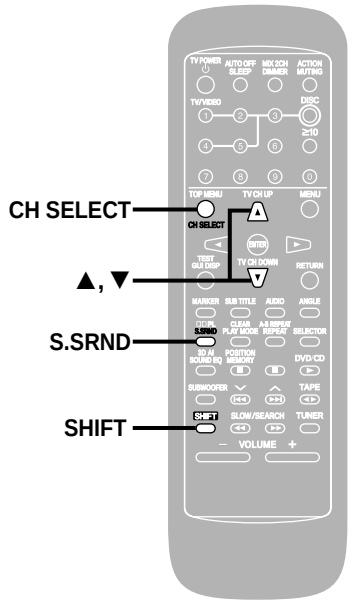



### To select a specific speaker

1. Press [SHIFT] + [CH SELECT] to select the speaker.
   Lch → Cch → Rch→ RSch → LSch → SWch
   - SWch: Subwoofer (Dolby Digital only)
   - The surround channel for Dolby Pro Logic is monaural so the indicator appears as “Sch” instead.
2. Press [▲] (to increase) or [▼] (to decrease).




## A SUPER SURROUND

### Press [S.SRND] to select “MOVIE” or “MUSIC”.

The button lights.

Each time you press the button:
MUSIC → MOVIE → STEREO SOUND (off)

---

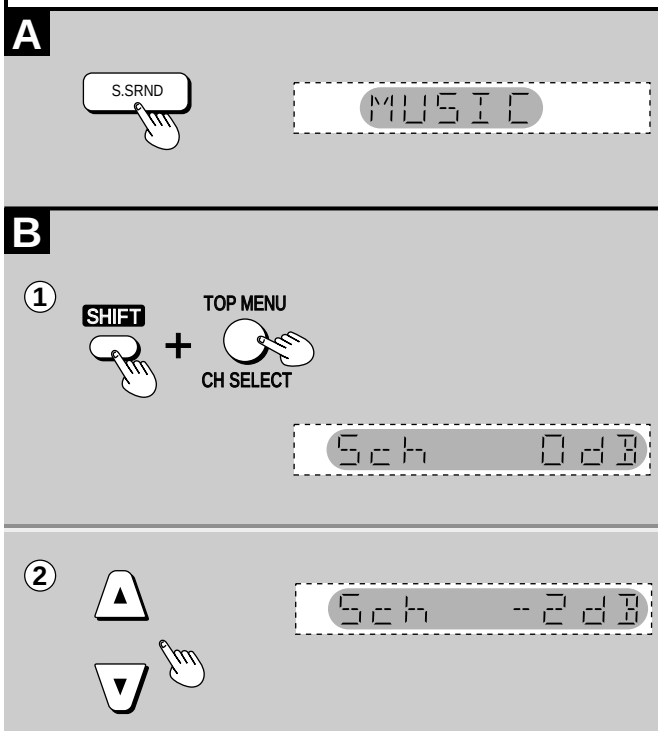
**To cancel**
Press [S.SRND] so the indicator turns off.

**Note**
Turn super surround off when playing a DVD recorded with 5.1-channel Dolby Digital. The surround effects will not be reproduced correctly if this is left on.

### B Surround speaker level adjustments

**Remote control only**

While playing a source
① Press [SHIFT] + [CH SELECT].
② Press the cursor buttons [▲] (to increase) or [▼] (to decrease).



## Selection of tapes for recording

The unit automatically identifies the type of tape.

| | |
|---|---|
| Normal position/TYPE I | ✔ |
| High position/ TYPE II | ✔ |
| Metal position/ TYPE IV | × |

Metal position tapes can be used, but the unit will not be able to record or erase them correctly.

### Volume, sound quality and surround effects

- Recording level is set automatically.
- Multi-channel sources (3 to 5.1 channels) are automatically down-mixed to 2 channels during recording.
  Turn on dynamic range compression if sound is distorted (➡ Audio–D.Range Compression, pages 52–53).
- All sound effects are automatically set to flat.

## A Erasure prevention

The illustration shows how to remove the tabs to prevent recording. To record on the tape again, cover as shown, being careful not to cover the high position discrimination hole.

## B Erasing recordings

**Preparation:**
(For the Middle East, South Africa and Asia)
Disconnect the microphones.

① Press [SELECTOR] to select “TAPE”.
② Press [REV MODE/FM MODE/BP] to select the reverse mode.
③ Press [●REC/STOP].

## C Preparatory steps

Do these steps before each recording.
Wind up the leader tape so recording can begin immediately.

### 1 Press [⏏ OPEN] and insert the cassette to be recorded on.

The tape direction is automatically set to “▷”.

> **To record on the reverse side**
> Press [TAPE ◀ ▶] twice, then press [■, TUNE MODE].

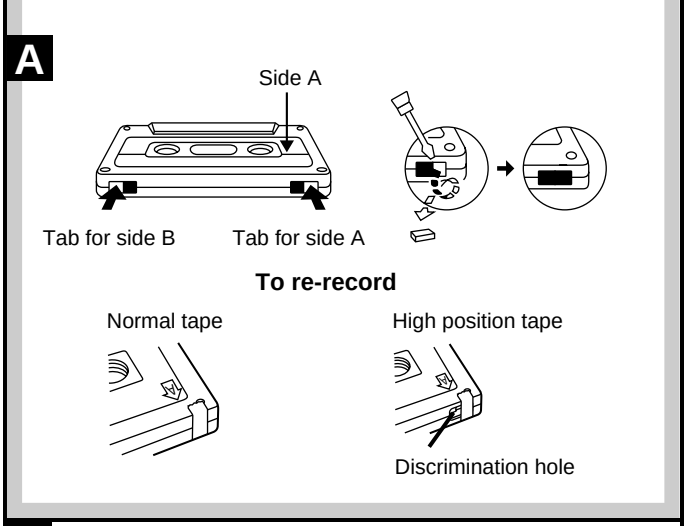
### 2 Select “TAPE” with [SELECTOR], then Press [REV MODE/FM MODE/BP] to select the reverse mode.

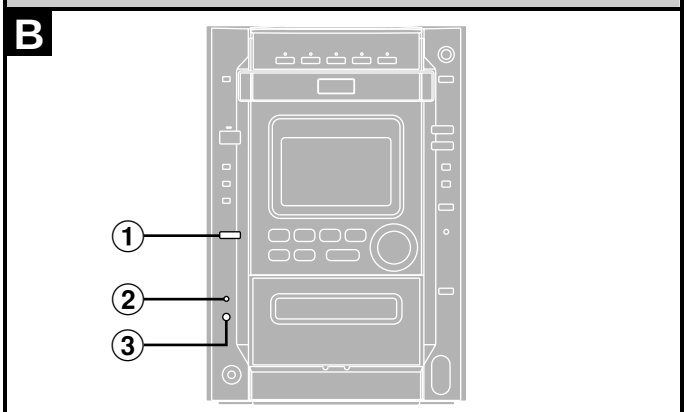
Every time you press the button:

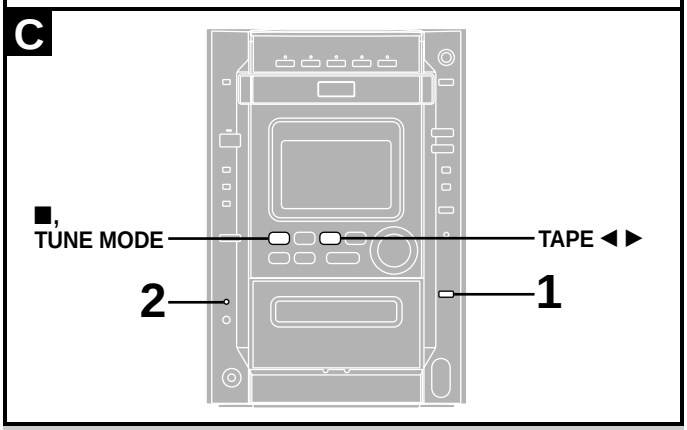
⇄ → ⇄) → (⇄)

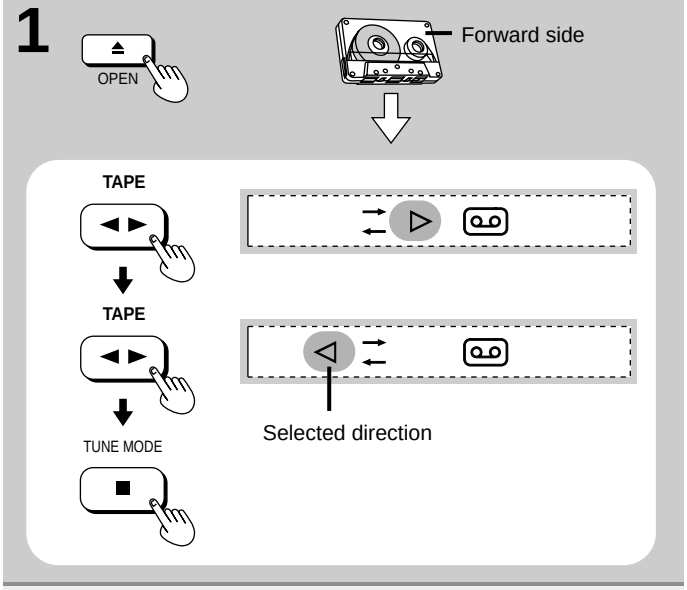
⇄ : One side only records.
⇄) and (⇄) : Both sides record (forward → reverse).
Recording stops at the end of the reverse side.

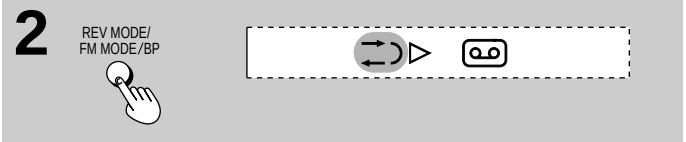
“(⇄)” automatically changes to “⇄)” when [●REC/STOP] is pressed.

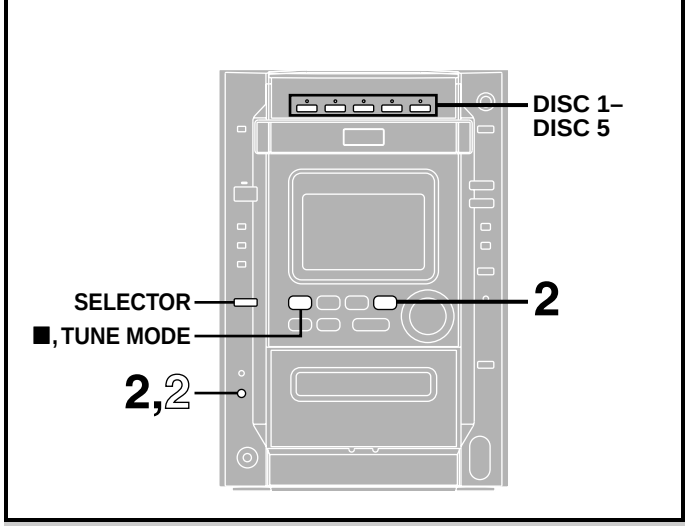


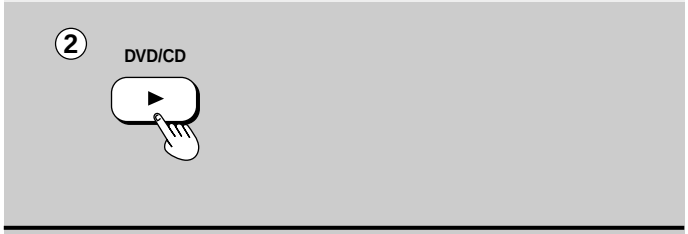



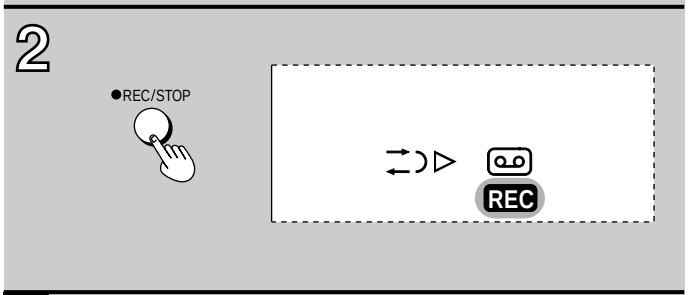



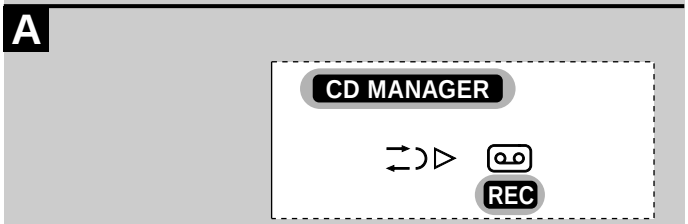








# Recording discs

**Preparation:**
- Do the preparatory steps (➡ page 37).
- Press [SELECTOR] to select “DVD/CD”.

## Normal recording

### 1, 1 Insert the disc you want to record.

If play starts, press [■, TUNE MODE] twice to stop the disc.

If the disc is not in the play position (➡ page 14), press [DISC 1]–[DISC 5] to select the disc, then press [■, TUNE MODE] twice.

**DVD** **VCD**

### 2 ① Press [●REC/STOP].
### ② Press [DVD/CD ▶] to start play.

**CD**

### 2 Press [●REC/STOP] to start recording.

The CD starts.

---

- With DVDs and Video CDs, play will not start when you press [●REC/STOP]. Press [DVD/CD ▶] to start play.

**To stop recording**

EITHER: Press [●REC/STOP].
The DVD/Video CD keeps playing.
The CD stops automatically.
OR: Press [■, TUNE MODE].
The CD stops, and the tape stops after making a 4 second silent interval.

**To record programmed tracks**

**Video CD and CD only**

① Program the tracks (➡ page 22, steps 1–3).
② Press [●REC/STOP] to start recording.
Play starts.

To stop recording, press [●REC/STOP].
Disc play stops automatically.

**A** **Recording with CD MANAGER** (➡ page 24)

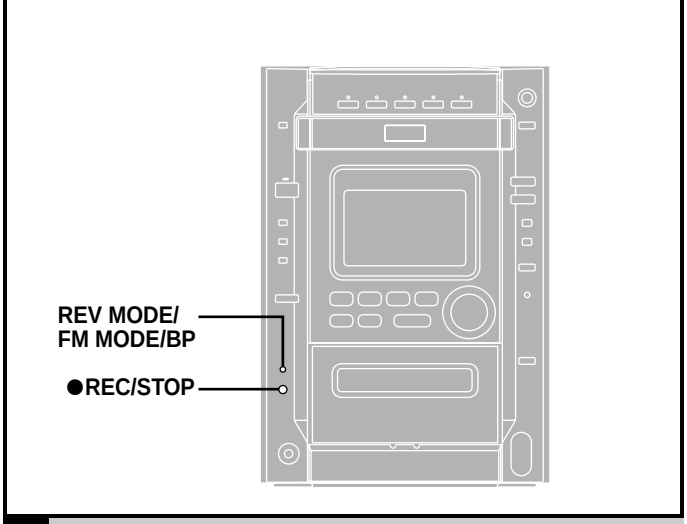
**VCD** **CD**

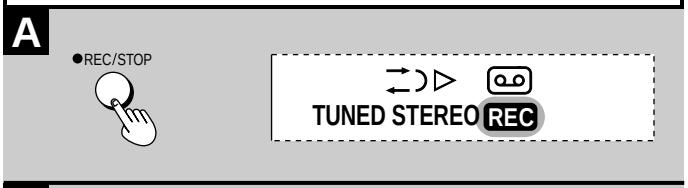
Record discs after selecting the required CD MANAGER mode (1-TRACK, 1-DISC, ALL-DISC).
- If a track is cut off in the middle at the end of the front side while recording, the track will be recorded from the beginning on the reverse side.
- At the end of the reverse side, recording stops and the current track will be interrupted.
- Recording pauses while discs are changing and resumes when the disc is ready.

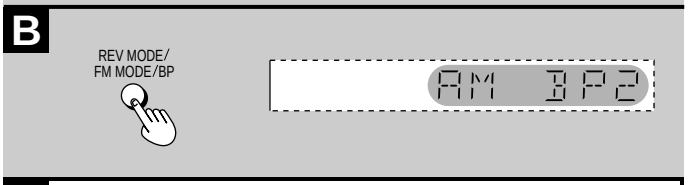
① Insert the disc you want to record.
If play starts, press [■, TUNE MODE] twice to stop the disc.
② Do steps 1 and 2 on page 24.
③ Press [●REC/STOP] to start recording.
Play starts.

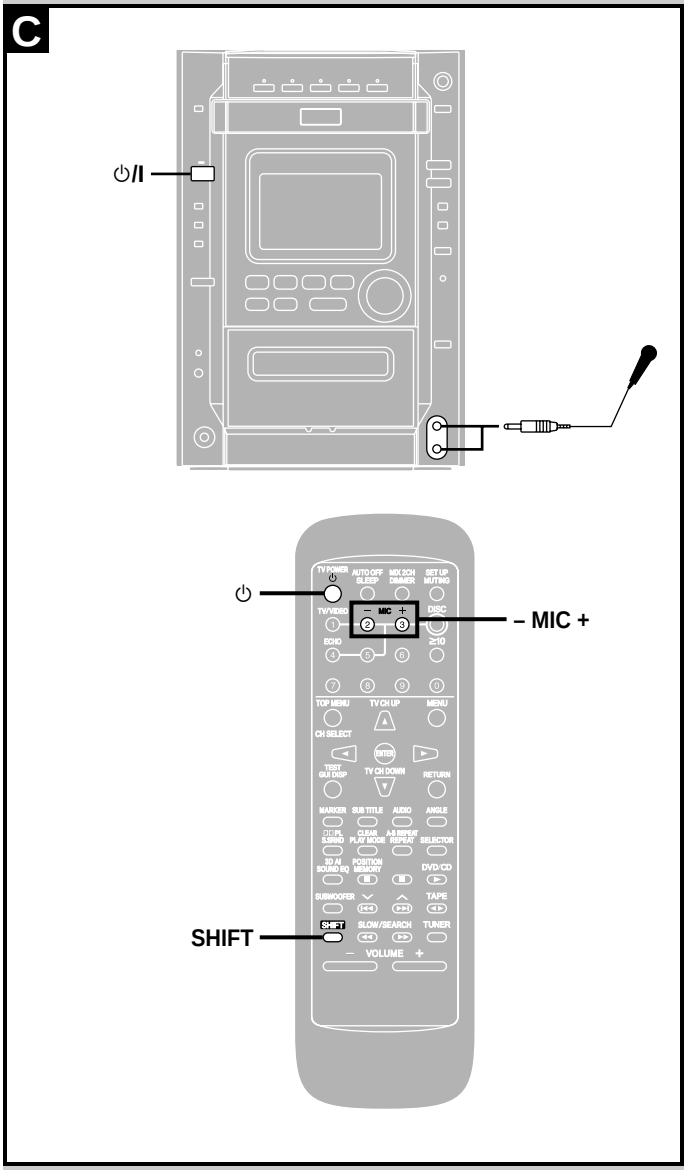
**To stop recording**

Press [●REC/STOP].
Disc play stops automatically.




## A Recording the radio

**Preparation:** Do the preparatory steps (➡ page 37).

**1 Tune to the required station.**
(➡ page 28 or 29)

**2 Press [● REC/STOP] to start recording.**

---

**To stop recording**
Press [● REC/STOP].

**B To reduce noise while recording an AM broadcast (Beat proof function)**
Press [REV MODE/FM MODE/BP] while recording.
Each time you press the button:
BP 1 ↔ BP 2
Select the position where there is less noise.

## C Enjoying karaoke

**(For the Middle East, South Africa and Asia)**

DVD VCD

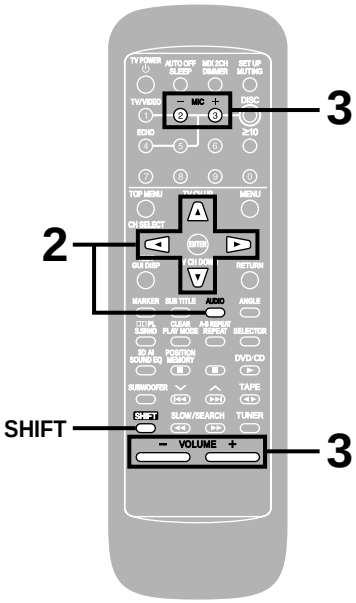
You can enjoy karaoke only while playing DVD and Video CDs.

**DVD**
Follow the steps described on page 40.

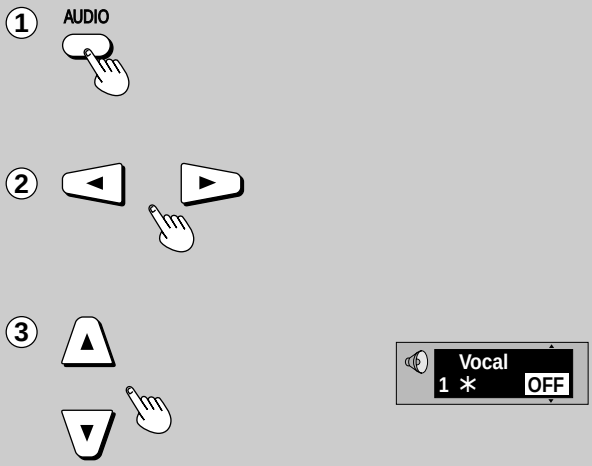
**Video CDs**
Follow the steps described on page 41.

**Preparation:**
- Press [⏻/I] to turn the unit on.
- Turn on the television and switch the video-input mode on the television to suit the connection.
- Lower the microphone volume with [SHIFT] + [– MIC +], then connect the microphone to the microphone jacks. Use a dynamic microphone.
  Plug type: 3.5 mm (1/8″) monaural
  **Audio is automatically switched to stereo (2ch).**
  You cannot do karaoke with surround effects or 3D AI EQ.

**Note**
- If a strange noise (squealing or howling) is emitted during use, move the microphone away from the speakers, or turn down the microphone volume.
- When you are not using the microphone, disconnect it from the microphone jacks, and turn down the microphone volume level to 0.




**2**




**3**

## Enjoying karaoke
**(For the Middle East, South Africa and Asia)**

## Enjoying karaoke with karaoke DVD

**DVD**

**Remote control only**

**1** **Insert the disc and start play** (➡ page 14)**.**

**2** **① Press [AUDIO] during play.**

**② Press the cursor buttons [◀], [▶] to highlight the illustrated icon.**

**③ Press the cursor buttons [▲], [▼] to turn the vocals on or off.**

| • Solo | | • Duet | |
|---|---|---|---|
| OFF: | No vocal | OFF: | No vocal |
| ON: | Vocal | V1+V2: | Vocal 1 and 2 |
| | | V1: | Vocal 1 |
| | | V2: | Vocal 2 |

Choose “OFF” for karaoke.
Choose “V1” or “V2” to duet with the player.

Actual operations depend on the disc. Read the disc’s instructions for details.

**3** **Start singing and adjust volume with [– VOLUME +] and [SHIFT] + [– MIC +].**
You can adjust the microphone volume level between 0 and 9.

## Enjoying karaoke with karaoke Video CDs

VCD

**Remote control only**

**1 Insert the disc and start play** (➡ page 14)**.**

**2 Press [AUDIO].**

Each time you press the button:

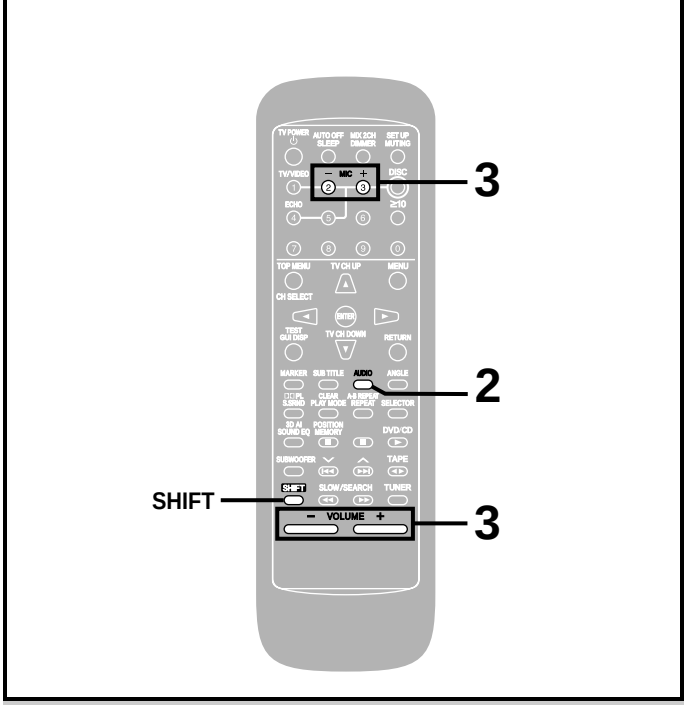
L → R → LR

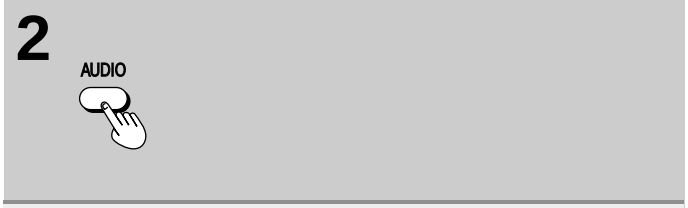
L: Only left channel sound (No vocal)
R: Only right channel sound (Vocal)
LR: Left channel sound is heard from the left speaker and right channel sound is heard from the right speaker. (Vocal and accompaniment)

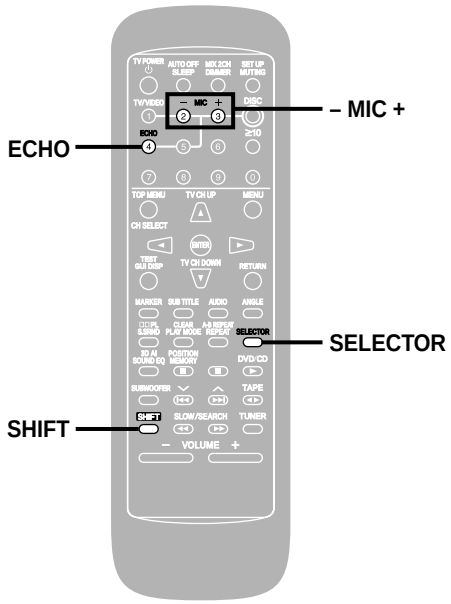
Select no vocal for karaoke.
Vocal and no vocal may be reversed.

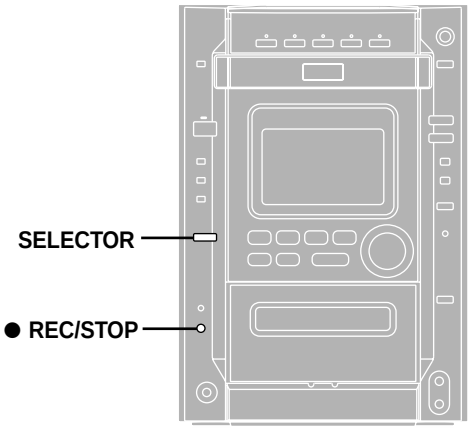
**3 Start singing and adjust volume with [– VOLUME +] and [SHIFT] + [– MIC +].**

You can adjust the microphone volume level between 0 and 9.






## Enjoying karaoke

**(For the Middle East, South Africa and Asia)**

### A Adding an echo effect

**Remote control only**

**Press [SHIFT] + [ECHO].**

Each time you press the button:

ECHO 1 → ECHO 2 → ECHO 3 → ECHO OFF (off)

The effect increases with the level.

### To record your karaoke performance

**Preparation:** Do the preparatory steps (➡ page 37).

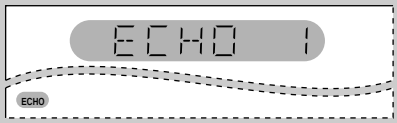
Press [●REC/STOP] and start your karaoke performance.

### Recording sound from the microphone

**Preparation:** Do the preparatory steps (➡ page 37).

① Press [SELECTOR] to select “TAPE”.
② Adjust the microphone volume with [SHIFT] + [– MIC +].
③ Press [●REC/STOP] to start recording and speak through the microphone.

**A**



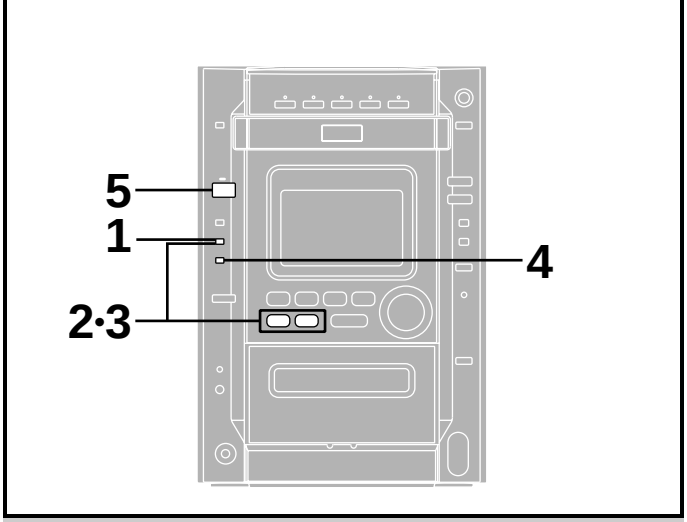
# Using the timers

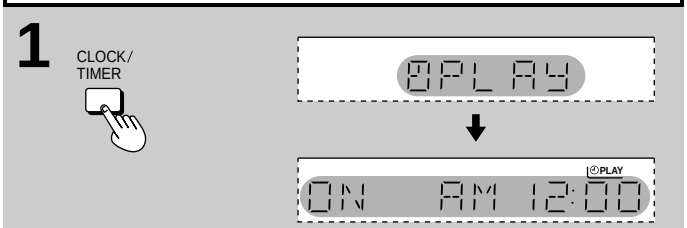
## The play timer

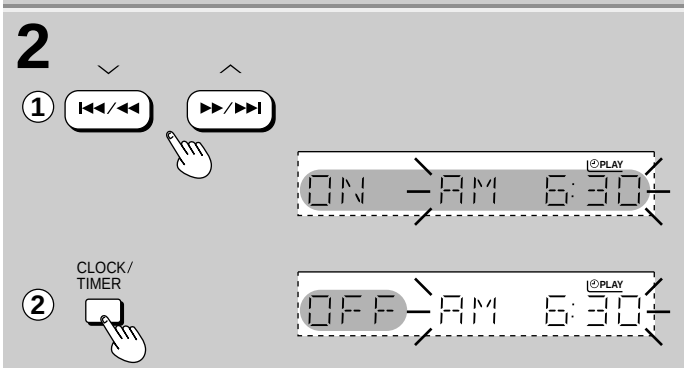
This timer starts play of the selected source at the selected time.
**For U.S.A. and Canada:** 12-hour clock
**For others:** 24-hour clock
The example shows settings on the 12-hour clock for play between 6:30 a.m. and 7:40 a.m.

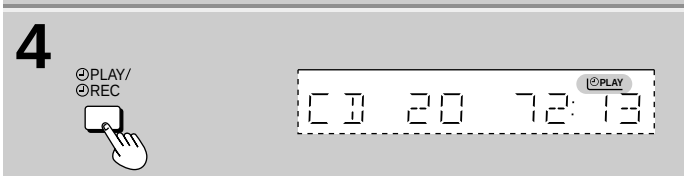
**Preparation:**

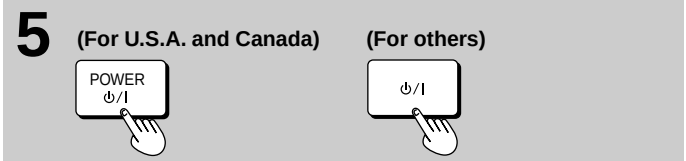
- Press [POWER ⏻/I] ([⏻/I]) to turn the unit on, set the time (➡ page 12).
- Select the desired source for timer play.
  **Disc**
  Press [SELECTOR] to select “DVD/CD” and insert an Audio CD, etc.
  If more than one disc is loaded
  Press [DISC 1]–[DISC 5] to select the disc you want to play and press [■, TUNE MODE].
  **Tape**
  Press [SELECTOR] to select “TAPE” and insert a cassette.
  **The radio**
  Press [TUNER, BAND] and tune in the desired station.
- Set the volume for timer play.






### 1 Press [CLOCK/TIMER] to select “◴PLAY”.

Each time you press the button:
CLOCK → ◴**PLAY** → ◴REC → Original display

### 2 ON time setting

① **(Within 8 seconds) Press [⏮/◀◀, ∨] or [▶▶/▶▶⏭, ∧] to select the start time.**
② **Press [CLOCK/TIMER].**

### 3 OFF time setting

① **Press [⏮/◀◀, ∨] or [▶▶/▶▶⏭, ∧] to select the finish time.**
② **Press [CLOCK/TIMER].**

### 4 Press [◴PLAY/◴REC] to display “◴PLAY”.

Each time you press the button:
◴**PLAY** → ◴REC → Original display

### 5 Press [POWER ⏻/I] ([⏻/I]) to turn the unit off.

The timer will start in the set condition at the set time.
The volume increases gradually to the set level.

---

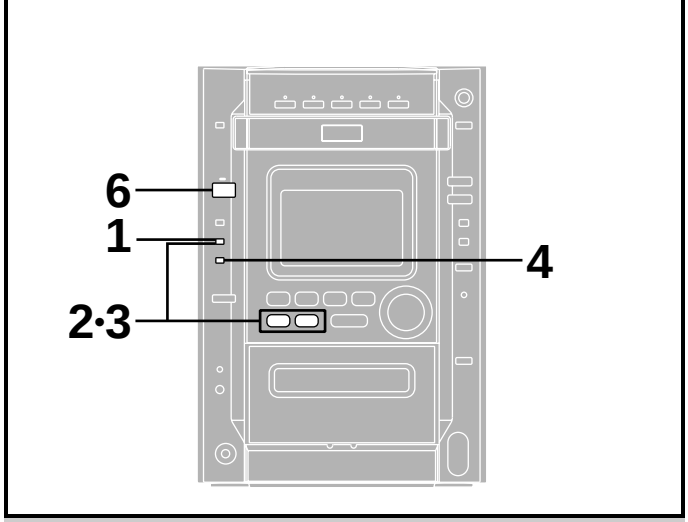
**If you set the timer incorrectly**
Repeat the procedure from step 1.

**To cancel the timer**
Press [◴PLAY/◴REC] to clear “◴PLAY”.

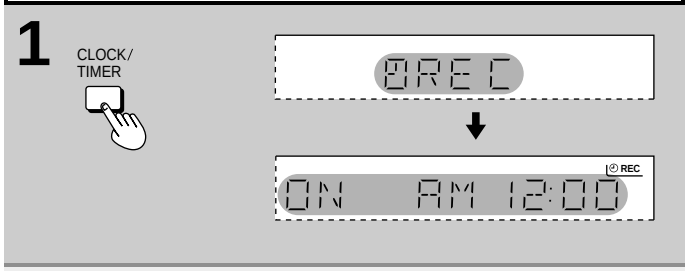
## The record timer

This timer records the radio at the set time.
**For U.S.A. and Canada:** 12-hour clock
**For others:** 24-hour clock
The example shows settings on the 12-hour clock for recording from 6:30 p.m. to 8:00 p.m.

**Preparation:**
- Press [POWER ⏻/I] ([⏻/I]) to turn the unit on, set the time (➡ page 12).
- Press [TUNER, BAND] and tune in the desired station.

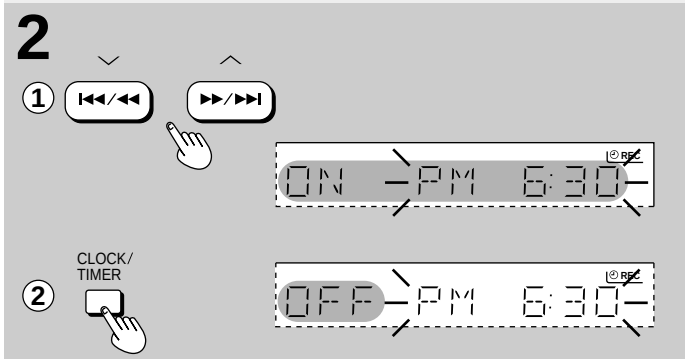



**1** Press [CLOCK/TIMER] to select "◴REC".
Each time you press the button:
CLOCK → ◴PLAY → ◴**REC** → Original display



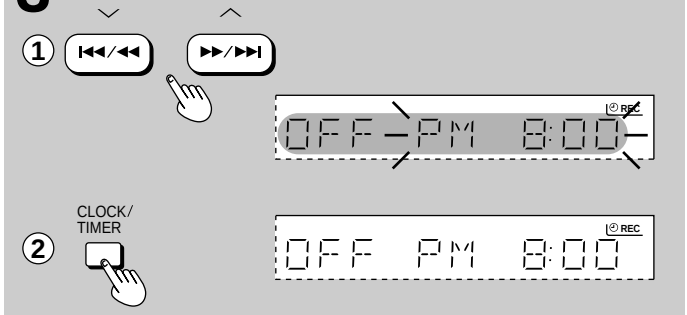

**2** ON time setting

① (Within 8 seconds)
Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to select the start time.
② Press [CLOCK/TIMER].

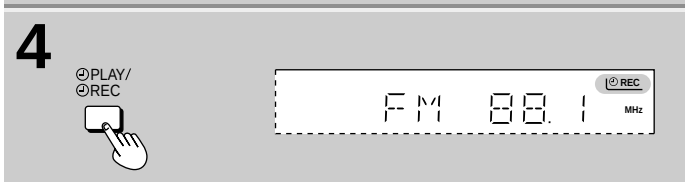



**3** OFF time setting

① Press [I◀◀/◀◀, ∨] or [▶▶/▶▶I, ∧] to select the finish time.
② Press [CLOCK/TIMER].

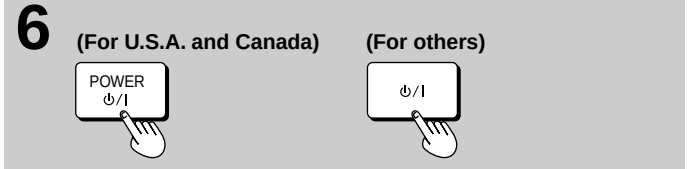



**4** Press [◴PLAY/◴REC] to display "◴REC".
Each time you press the button:
◴PLAY → ◴**REC** → Original display




**5** Prepare for recording (➡ page 37).
① Insert a tape and set the tape direction.
② Select the reverse mode.

**6** Press [POWER ⏻/I] ([⏻/I]) to turn the unit off.
Recording starts 30 seconds before the set time with the volume muted.

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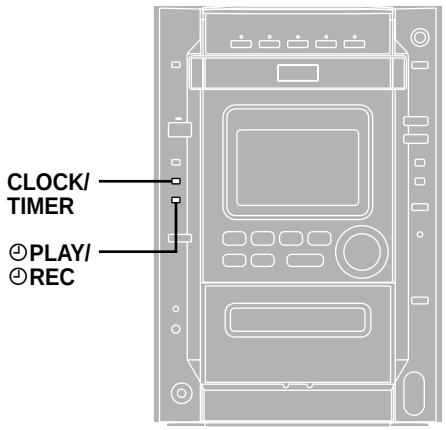
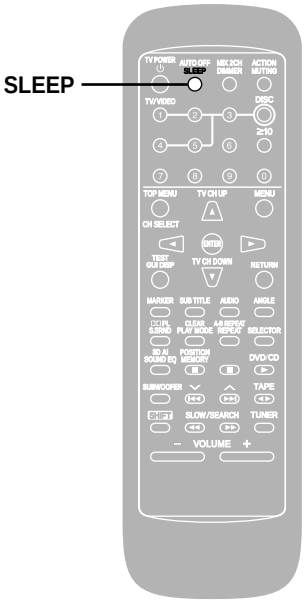
**If you set the timer incorrectly**
Repeat the procedure from step 1.

**To cancel the timer**
Press [◴PLAY/◴REC] to clear "◴REC".

A




B



## A The play and record timers

### Turning the timers on and off

The selected timer comes on at the set time if the indicator ("PLAY" or "REC") is on. The timer can be turned on and off by pressing [PLAY/REC].

### Checking the timers

- **While the unit is on**
  Press [CLOCK/TIMER] to select "PLAY" or "REC".
  The set timer conditions are shown in the following order.
  Play timer:
  start time → finish time → source → volume
  Record timer:
  start time → finish time → source
- **While the unit is off**
  Press [CLOCK/TIMER].
  The clock and the indicator for the timer that is on are shown.

### Playing the unit after the timers are set

The unit can be used after the timers are set.
Check the following before turning the unit off again.
If playing tapes or making a recording:
Reset tape direction.
If playing discs:
Make sure the desired disc is selected.

**Note**

- If you turn the unit off and on again while a timer is functioning, the finish time setting will not be activated.
- If the unit is on, the timer will not function. The unit must be in the standby mode.
- If AUX is selected as the source, when the timer comes on, the system turns on and engages AUX as the source. If you want to playback or record from a connected unit, set the other unit's timer to the same time. (See the other unit's instruction manual.)
- The record timer cannot be used with DVDs and Video CDs.
- The timer cannot be used to start the CD MANAGER or program play.

## B The sleep timer

**Remote control only**

This timer turns the unit off after a set time.

### Press [SLEEP] to select the time (minutes).

Each time you press the button:
SLEEP 30 → SLEEP 60 → SLEEP 90
→ SLEEP OFF ← SLEEP 120 ←

### To cancel the sleep timer

Press [SLEEP] to select "SLEEP OFF".

### To confirm the remaining time

While the timer is functioning
Press [SLEEP].
The remaining time is shown for about 5 seconds.

### To change the setting

Press [SLEEP] to display the remaining time, then press again to select the required time.

## Using the timers together

The play and sleep timers or the record and sleep timers can be used together.
The sleep timer always has priority. Be sure not to overlap timer settings.
The play and record timers cannot be used together.

# Convenient functions

## A Changing the sound range display

The unit's display shows the level of each sound range with the three types of display described below.

### Press [-DISPLAY/–DEMO].

Each time you press the button:
Normal display → Peak-hold display → Aurora display

ⓐ **Normal display**
This display indicates the strength of the sound in each tonal range.

ⓑ **Peak-hold display**
The peak sound value of each sound range is held on the display for about one second after it occurs.

ⓒ **Aurora display**
The peak sound value of each sound range is displayed in inverted form.

## B Dimming the display

**Remote control only**

The display is dimmed and all indicators, except for the AC IN indicator, are turned off for better television viewing.

### Press [DIMMER].

To cancel, press [DIMMER] again.

## C Muting the volume

**Remote control only**

### Press [MUTING].

Volume is reduced to minimum.

---

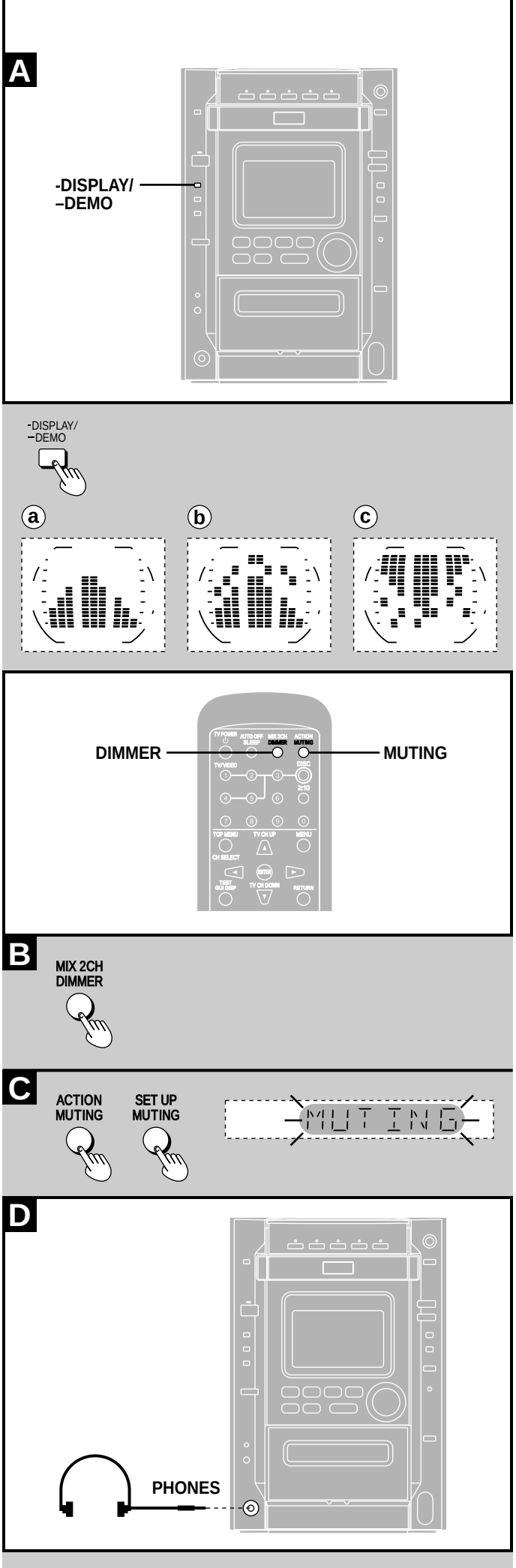
**To cancel**
Press [MUTING] again.
"MUTING" goes out.
To cancel from the unit, turn [VOL] to minimum (–– dB), then raise it to the required level.
Muting is also canceled when the unit is turned off.

## D Using headphones (not included)

### Reduce the volume before connection.

Avoid listening for prolonged periods of time to prevent hearing damage.
Plug type: 3.5 mm (1/8″) stereo

Audio is automatically switched to stereo (2 channel). If sound is distorted, turn on dynamic range compression (➡ Audio–D.Range Compression, pages 52–53).



# External unit connections

- Turn the unit off before making connections.
- Refer to the manual of the other unit for details. (Cables and equipment not included.)

**Stereo connection cable (not included)**
White (L)
Red (R)

## A Laser disc player/Video cassette recorder, etc.

You can playback the sound from a laser disc player/video cassette recorder through this unit's speakers.
This unit has Dolby Pro Logic circuitry. The sound will be reproduced with the same powerful stereophonic effects found in movie theaters.

## B Record player

Sound cannot be produced unless an phono equalizer (not included) is connected.
A record player with a built-in phono equalizer is recommended.

## C TV with an S-VIDEO terminal

The S-VIDEO output terminal achieves a more vivid picture than VIDEO OUT terminal by separating the color and luminance signals before transmitting them to the television. (Actual results depend on the television.)

**S-VIDEO cable (not included)**

See the television's manual for details on connection and operation.

## Optional antenna connections

Use outdoor antennas if radio reception is poor.

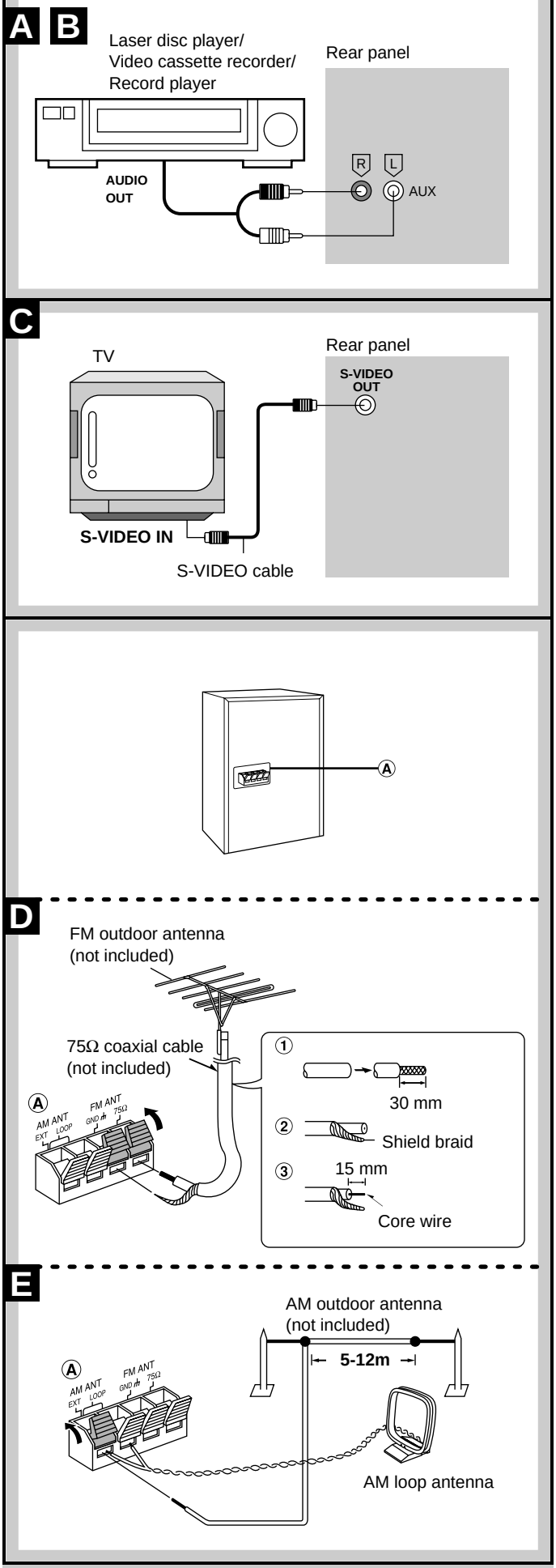
### D FM outdoor antenna

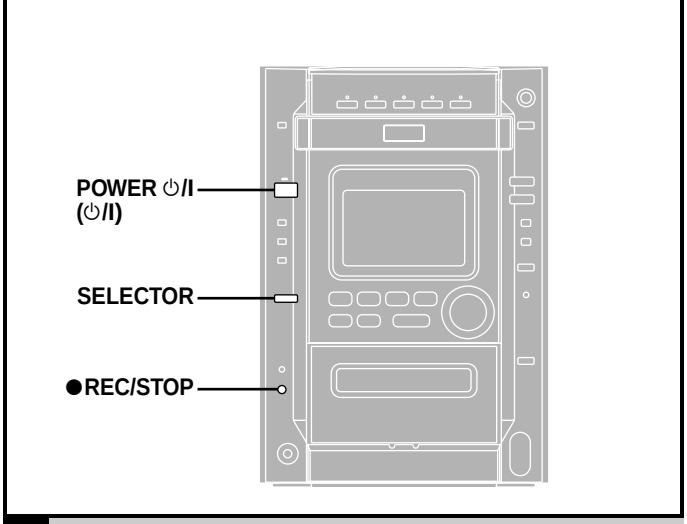
- Disconnect the FM indoor antenna.
- The antenna should be installed by a competent technician.

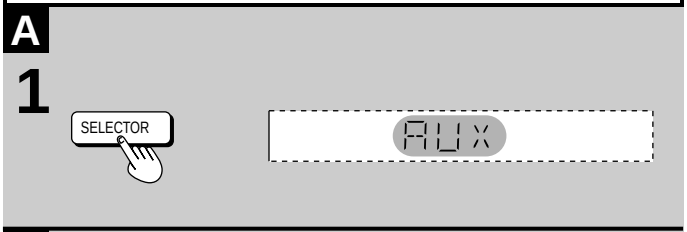
### E AM outdoor antenna

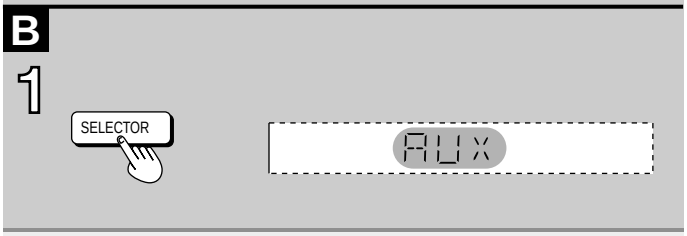
Run a piece of vinyl wire horizontally across a window or other convenient location.
Leave the loop antenna connected.

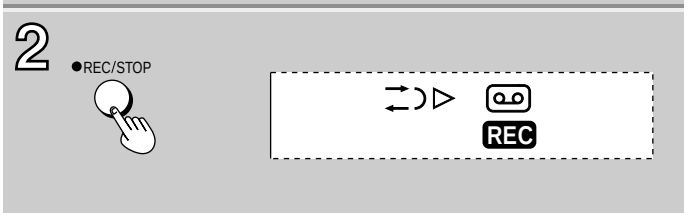
**Note**
Disconnect the antenna when the unit is not in use.
Do not use the antenna during an electrical storm.

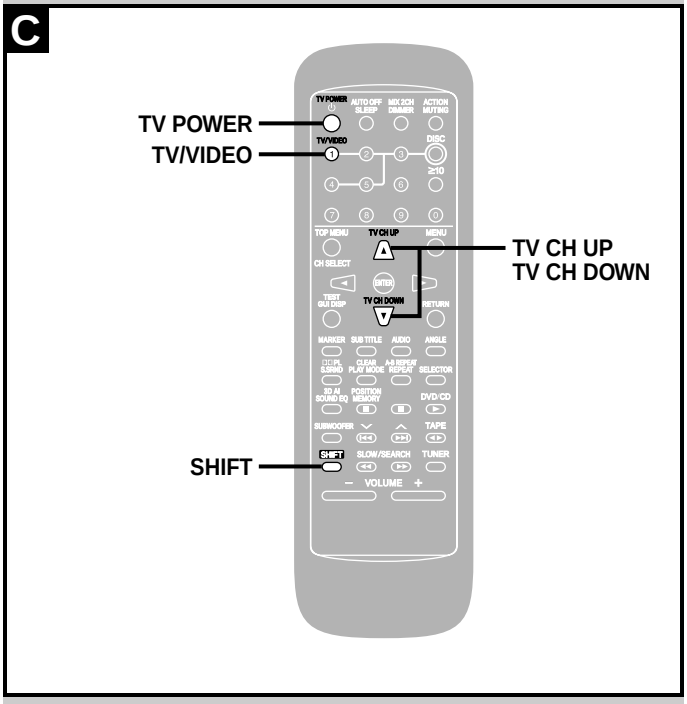





# Using other equipment

## A Listening to an external source

**Preparation:** Press [POWER ⏻/I] ([⏻/I]) to turn the unit on.

### 1 Press [SELECTOR] to select “AUX”.

Each time you press the button:
TUNER → TAPE → DVD/CD → **AUX**

### 2 Operate the unit.

See the unit’s manual for details on operation and connection.

## B Recording an external source

**Preparation:**
- Press [POWER ⏻/I] ([⏻/I]) to turn the unit on.
- Do the preparatory steps (➡ page 37).

### 1 Press [SELECTOR] to select “AUX”.

Each time you press the button:
TUNER → TAPE → DVD/CD → **AUX**

### 2 Press [●REC/STOP].

### 3 Start the source to be recorded.

See the unit’s manual for details on operation and connection.

---

**To stop recording**
Press [●REC/STOP].

## C Operating a television with the remote control

You can use the remote control to operate a Panasonic television.

**Turning the television on/off**

**Press [SHIFT] + [TV POWER].**

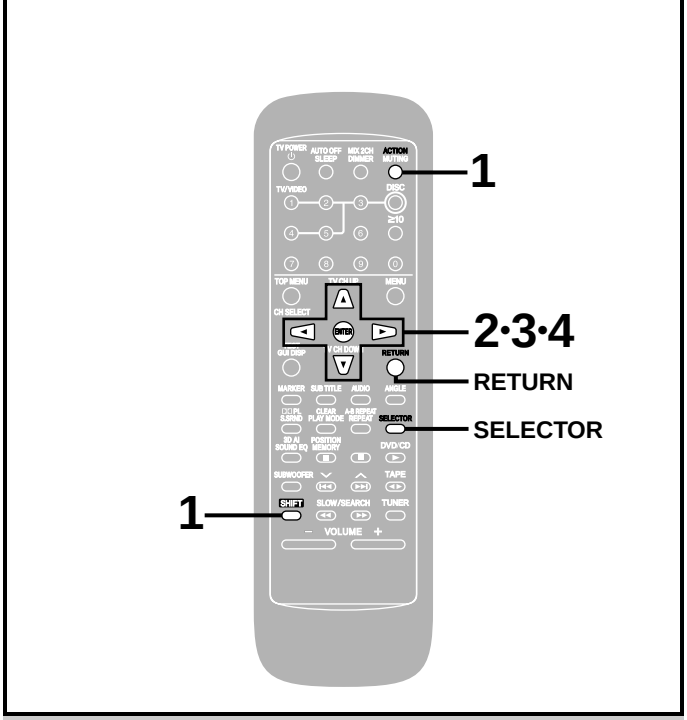
**Switching the television’s video input mode**

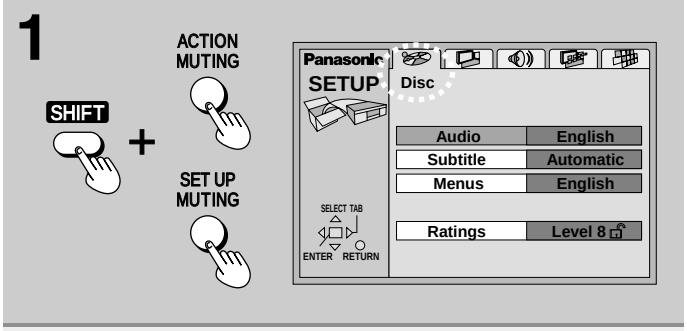
**Press [SHIFT] + [TV/VIDEO].**

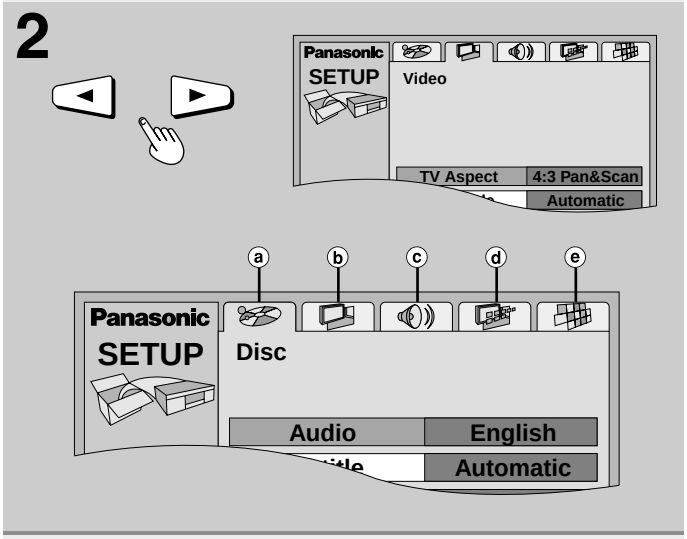
**Changing channels**

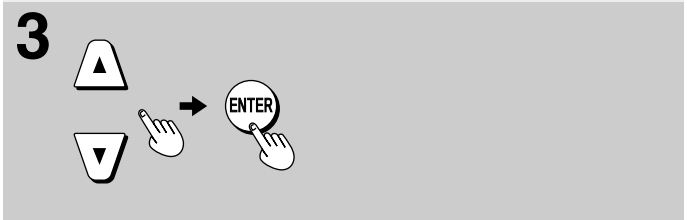
**Press [SHIFT] + [TV CH UP], [TV CH DOWN].**

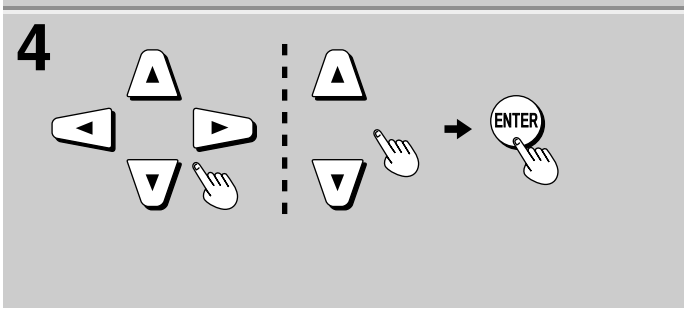
**Note**
Some models cannot be operated by this remote control.




# Changing settings

Change the settings to suit your preferences and to suit the unit to the environment in which it is being used.
These settings are retained in memory until they are changed, even if the unit is turned off.

## Common procedures

See pages 50–53 for menu and option details.

**Remote control only**

**Preparation:**
Press [SELECTOR] to select “DVD/CD”.

**1** For Australia, N.Z., the Middle East, South Africa and Asia
**Press [SHIFT] + [SET UP].**
For U.S.A., Canada and others
**Press [SHIFT] + [ACTION].**

- The QUICK SETUP screen appears when you press [SHIFT] + [ACTION] (or [SET UP]) the first time after purchase (➡ page 13).

**2** **Press [◀], [▶] to select the menu’s tab.**
The screen changes to display the menu.
→ Disc menu (ⓐ)
↕
Video menu (ⓑ)
↕
Audio menu (ⓒ)
↕
Display menu (ⓓ)
↕
→ Others (ⓔ)

**3** **Press [▲], [▼] to select the item you want to change and press [ENTER].**

**4** For Australia, N.Z., the Middle East and South Africa
**Press [▲], [▼], [◀], [▶] to select the option and press [ENTER].**
For U.S.A., Canada and others
**Press [▲], [▼] to select the option and press [ENTER].**
The screen now shows the menu again.

---

**To return to the previous screen**
Press [RETURN].

**To exit the settings menu**
Press [SHIFT] + [ACTION] (or [SETUP]).

**Note**

- The SETUP menu cannot be accessed while program mode (“PRGM” is displayed, ➡ page 22) or random mode (➡ page 23) is on.
  Press [PLAY MODE] to turn the mode off.
- The SETUP menu cannot be accessed while CD MANAGER (➡ page 24) is on.
  Press [CD MANAGER] to select “NORMAL”.

## Summary of settings

This chart shows the settings for this unit.
See page 49 for details on operation.
Shaded items are the factory settings.

The menu and on-screen message language has been factory preset to English. You can change the language by going to "Menu Language" in the Display menu (➡ page 52).



| Main menu | Menu | Options |
|---|---|---|
| **Disc** **DVD** | **Audio**<br>Choose the preferred audio language. | **For Australia, N.Z., the Middle East and South Africa**<br>English French German Italian<br>Spanish Portuguese Swedish Dutch<br>Original Other ✳✳✳✳<br>**For Asia**<br>English Chinese Original Other ✳✳✳✳<br>**For U.S.A., Canada and others**<br>English French Spanish<br>Original Other ✳✳✳✳ |
| | **Subtitle**<br>Choose the preferred subtitle language. | **For Australia, N.Z., the Middle East and South Africa**<br>Automatic English French German<br>Italian Spanish Portuguese Swedish<br>Dutch Other ✳✳✳✳<br>**For Asia**<br>Automatic English Chinese Other ✳✳✳✳<br>**For U.S.A., Canada and others**<br>Automatic English French<br>Spanish Other ✳✳✳✳ |
| | **Menus**<br>Choose the preferred language for disc menus. | **For Australia, N.Z., the Middle East and South Africa**<br>English French German Italian<br>Spanish Portuguese Swedish Dutch<br>Other ✳✳✳✳<br>**For Asia**<br>English Chinese Other ✳✳✳✳<br>**For U.S.A., Canada and others**<br>English French Spanish Other ✳✳✳✳ |
| | **Ratings**<br>Set a ratings level to limit DVD play. | **Setting ratings (When level 8 is selected)**<br>8 No Limit 1 to 7 0 Lock All<br>**Changing ratings (When level 0-7 is selected)**<br>Unlock Player Change Level<br>Change Password Temporary Unlock |
| **Video** **DVD** **VCD** | **TV Aspect**<br>Choose the setting to suit your television and preference (➡ page 13). | 4:3 Pan&Scan 4:3 Letterbox 16:9 |
| | **Still Mode**<br>Specify the type of picture shown when paused. | Automatic<br>Field<br>Frame |
| | **For Australia, N.Z., the Middle East, South Africa and Asia**<br>**NTSC Disc Output**<br>Choose whether PAL60 or NTSC signals are output during playback of NTSC discs (➡ page 6). | PAL60 (Factory setting for Australia, N.Z., the Middle East and South Africa)<br>NTSC (Factory setting for Asia) |
| | **For U.S.A., Canada and others**<br>**Black Level Control**<br>Change the black level of the picture. | Lighter<br>Darker |

**(Continued on next page)**

Changes to the settings remain intact after the unit is turned off.
Do the setting procedures again to restore to the original settings.

| | | Remarks |
|---|---|---|
| | "**Other ∗∗∗∗**" : Input a code number with the numbered buttons (➡ page 54).<br>"**Original**" : The original language of each disc will be selected.<br>"**Automatic**" : If the language selected for "Audio" is not available, subtitles of that language will automatically appear if available on that disc. | Some discs are designed to start in a certain language despite any changes you make here. |
| | **Level 8:** All DVDs can be played.<br>**Level 1 to 7:** Prohibits play of DVDs with corresponding ratings recorded on them.<br>**Level 0:** Prohibits play of all DVDs. | • The password screen is shown if you choose levels 0 to 7 (➡ page 54).<br>• Select "Level 0" to prevent play of discs that do not have ratings levels recorded on them. |
| | | The password screen is shown when you select "Ratings" if levels 0 to 7 have been selected (➡ page 54). |
| | | |
| | **Field:** Less blurred field stills are shown. Select if jittering occurs when "Automatic" is selected.<br>**Frame:** Sharper frame stills are shown. Select if small text or fine patterns cannot be seen clearly when "Automatic" is selected. | |
| | **PAL 60:** When connected to a PAL television.<br>**NTSC:** When connected to an NTSC or a multi-system television. | |

## Summary of settings

| Main menu | Menu | Options |
|---|---|---|
| **Audio** | **Speaker Setting** DVD (Dolby Digital only)<br>Set the delay time for your center and surround speakers (➡ page 55). | Center: 0 / 1.3 / 2.6 / 3.9 / 5.3 ms<br>Surround (L/R): 0 / 5.3 / 10.6 / 15.9 ms |
| | **D. Range Compression** DVD (Dolby Digital only)<br>Change the dynamic range.<br>Dynamic range is the difference between the loudest sound and the softest sound. | Off On |
| | **Audio during Search** DVD VCD<br>Choose whether to have sound during search. | On Off |
| **Display** | **Menu Language**<br>Choose the preferred language for these menus and the on-screen messages. | **For Australia, N.Z., the Middle East and South Africa**<br>English Français Deutsch Italiano<br>Español Português Svenska Nederlands<br>**For Asia**<br>English 中文<br>**For U.S.A., Canada and others**<br>English Français Español |
| | **On-Screen Messages**<br>Choose whether to show on-screen messages or not. | On Off |
| **Others** | **QUICK SETUP**<br>Answer questions to make basic settings. | Yes No |

| | | Remarks |
|---|---|---|
| | When the center/surround speakers cannot be located in the ideal position. | |
| | | Turn dynamic range compression on in the following cases.<br>• For clear dialogue when listening at low volume.<br>• When sound is distorted while playing multi-channel DVD audio through two channels. |
| | | |
| | | |
| | | |
| | | |

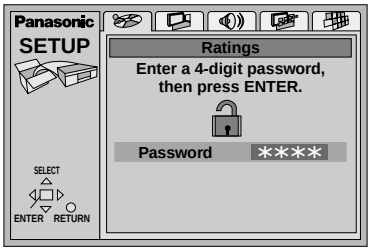
## Entering a password

DVD

### When setting ratings (When the level is 8)

The password screen is shown when you select levels 0 to 7.

1. Input a 4-digit password with the numbered buttons and press [ENTER].




- If you enter a wrong number, press [◀] to erase it before you press [ENTER].

The lock symbol appears closed to show the rating is locked.
Do not forget your password.

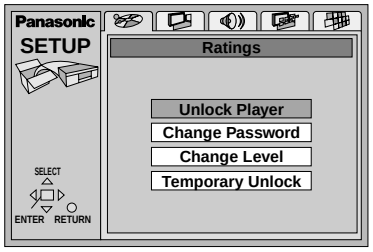
2. Press [ENTER] to confirm the 4 digits.

Now, when you insert a DVD that exceeds the ratings limit you set, a message appears on the television.
Follow the on-screen instructions.

### When changing ratings (When the level is 0 to 7)

The password screen is shown when you select “Ratings”.

1. Input your 4-digit password with the numbered buttons and press [ENTER].




2. Select the item with [▲], [▼] and press [ENTER] and follow the on-screen instructions.

### Language code list

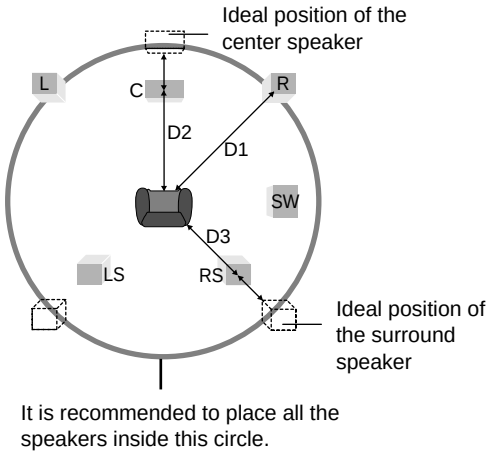
| | | | |
|---|---|---|---|
| 6566: Abkhazian | 7074: Fiji | 7678: Lingala | 8373: Singhalese |
| 6565: Afar | 7073: Finnish | 7684: Lithuanian | 8375: Slovak |
| 6570: Afrikaans | 7082: French | 7775: Macedonian | 8376: Slovenian |
| 8381: Albanian | 7089: Frisian | 7771: Malagasy | 8379: Somali |
| 6577: Ameharic | 7176: Galician | 7783: Malay | 6983: Spanish |
| 6582: Arabic | 7565: Georgian | 7776: Malayalam | 8385: Sundanese |
| 7289: Armenian | 6869: German | 7784: Maltese | 8387: Swahili |
| 6583: Assamese | 6976: Greek | 7773: Maori | 8386: Swedish |
| 6588: Aymara | 7576: Greenlandic | 7782: Marathi | 8476: Tagalog |
| 6590: Azerbaijani | 7178: Guarani | 7779: Moldavian | 8471: Tajik |
| 6665: Bashkir | 7185: Gujarati | 7778: Mongolian | 8465: Tamil |
| 6985: Basque | 7265: Hausa | 7865: Nauru | 8484: Tatar |
| 6678: Bengali; Bangla | 7387: Hebrew | 7869: Nepali | 8469: Telugu |
| 6890: Bhutani | 7273: Hindi | 7879: Norwegian | 8472: Thai |
| 6672: Bihari | 7285: Hungarian | 7982: Oriya | 6679: Tibetan |
| 6682: Breton | 7383: Icelandic | 8083: Pashto, Pushto | 8473: Tigrinya |
| 6671: Bulgarian | 7378: Indonesian | 7065: Persian | 8479: Tonga |
| 7789: Burmese | 7365: Interlingua | 8076: Polish | 8482: Turkish |
| 6669: Byelorussian | 7165: Irish | 8084: Portuguese | 8475: Turkmen |
| 7577: Cambodian | 7384: Italian | 8065: Punjabi | 8487: Twi |
| 6765: Catalan | 7465: Japanese | 8185: Quechua | 8575: Ukrainian |
| 9072: Chinese | 7487: Javanese | 8277: Rhaeto-Romance | 8582: Urdu |
| 6779: Corsican | 7578: Kannada | 8279: Romanian | 8590: Uzbek |
| 7282: Croatian | 7583: Kashmiri | 8285: Russian | 8673: Vietnamese |
| 6783: Czech | 7575: Kazakh | 8377: Samoan | 8679: Volapük |
| 6865: Danish | 7589: Kirghiz | 8365: Sanskrit | 6789: Welsh |
| 7876: Dutch | 7579: Korean | 7168: Scots Gaelic | 8779: Wolof |
| 6978: English | 7585: Kurdish | 8382: Serbian | 8872: Xhosa |
| 6979: Esperanto | 7679: Laotian | 8372: Serbo-Croatian | 7473: Yiddish |
| 6984: Estonian | 7665: Latin | 8378: Shona | 8979: Yoruba |
| 7079: Faroese | 7686: Latvian, Lettish | 8368: Sindhi | 9085: Zulu |

## Delay time

**DVD (Dolby Digital, center and surround speakers only)**

The sound from speakers can reach the listening position at different times depending on placement. You can allow for this difference by changing the delay time of the center and surround speakers.

### Calculating delay time




D1: The distance from the front speaker
D2: The distance from the center speaker
D3: The distance from the surround speaker

### Center speaker delay time

If D1 ≦ D2, then set delay time to 0 ms.
If D1 > D2, then set delay time as follows:

| Difference between D1 and D2 | Delay time |
|---|---|
| 50 cm (1 1/2 feet) | 1.3 ms |
| 100 cm (3 feet) | 2.6 ms |
| 150 cm (5 feet) | 3.9 ms |
| 200 cm (6 feet) | 5.3 ms |

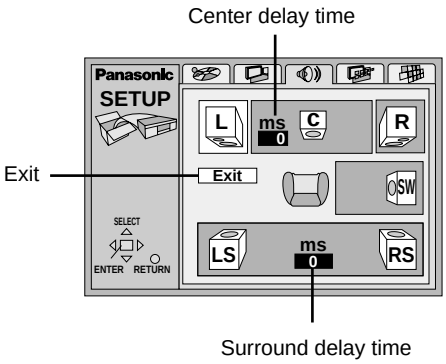
### Surround speaker delay time

If D1 ≦ D3, then set delay time to 0 ms.
If D1 > D3, then set delay time as follows:

| Difference between D1 and D3 | Delay time |
|---|---|
| 200 cm (6 feet) | 5.3 ms |
| 400 cm (12 feet) | 10.6 ms |
| 600 cm (18 feet) | 15.9 ms |

### Changing the delay time

1. Press the cursor buttons to select the delay time box and press [ENTER].
2. Press [▲], [▼] to adjust the delay time and press [ENTER].




**When you are finished**

Press [◀] to select “Exit” and press [ENTER].

# Troubleshooting guide

**Before requesting service, make the below checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem:**
***In the U.S.A., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or web site (http://www.panasonic.com).***
***In Canada, contact Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, web site (www.panasonic.ca), or an authorized Servicentre closest to you.***

**Reference pages are shown as black circled numbers ❽.**

### Common Problems

| | |
|---|---|
| **No sound.**<br>**Sound stops.** | Turn the volume up.<br>The speaker cables may be shorted. Turn the unit off, check and correct the connections and turn the unit on. ❽<br>Switch off the unit, determine and correct the cause of the problem, then switch the unit on. Causes include shorting of the positive and negative speaker wires, straining of the speakers through excessive volume or power, and using the unit in a hot environment. ❽ |
| **Sound is unfixed, reversed or comes from one speaker only.** | Check the speaker connections. ❽ |
| **Humming heard during play.** | An AC power supply cord or fluorescent light is near the cables. Keep other appliances and cords away from this unit's cables.<br>If possible in your area, turn the AC power supply cord's plug or connector over to reverse the plug's polarity. |
| **"ERROR" is displayed.** | Incorrect operation performed. Read the instructions and try again. |
| **"––:––" appears on the display.** | You plugged the power supply cord in for the first time or there was a power failure recently.<br>Set the time. ⓬ |
| **"F61" is displayed.** | Check and correct the speaker cords connection.<br>If this does not fix the problem, there is a power supply problem. Consult the dealer. |
| **The display starts up even after the unit is turned off.** | The demonstration feature (DEMO) is on. Turn it off if it is not required. ⓬ |
| **"DTS NO AUDIO" is displayed.** | This unit is unable to decode DTS signals. |
| **"DTS CD" is displayed.** | This unit is unable to decode DTS signals. |
| **"DVD U11" is displayed.** | This disc is dirty. Wipe it with a soft cloth. |
| **"DVD H□□" is displayed.**<br>**(□□ will be numbers.)** | A problem has occurred. Turn the unit off and unplug the AC power supply cord. Wait a moment and then plug the cord in and turn on the unit again. If the unit is still not working correctly, consult your dealer. |

### Listening to the radio

| | |
|---|---|
| **Noise is heard.**<br>**The stereo indicator flickers or doesn't light.**<br>**Sound is distorted.** | Use an outdoor antenna. ❹❼ |
| **A beat sound is heard.** | Turn the TV off or separate it from the unit. |
| **A low hum is heard during AM broadcasts.** | Separate the antenna from other cables and cords. |

### When there is a television set nearby

| | |
|---|---|
| **The picture on the TV disappears or stripes appear on the screen.** | The location and orientation of the antenna are incorrect. If you are using an indoor antenna, change to an outdoor antenna.<br>The TV antenna wire is too close to the unit. Separate the antenna wire of the TV set from the unit. |

### Using the cassette deck

| | |
|---|---|
| **Poor quality sound.** | Clean the heads. ❺❼ |
| **Recording is not possible.** | If the erasure prevention tabs have been removed, cover the holes with adhesive tape. ❺❼ |

### Playing discs

| | |
|---|---|
| **The display is wrong or play won't start.** | The disc may be upside down. ⓮<br>Wipe the disc.<br>Replace the disc if it is scratched, warped, or nonstandard.<br>Condensation may have formed inside the unit due to a sudden change in temperature. Wait about an hour for it to clear and try again. |
| **"TAKE OUT/DISC" appears on the display.** | There is a problem with the disc mechanism. (A power failure may have occurred.)<br>The tray will open automatically. Remove the disc from the tray, and after ensuring there is no disc in the tray close it. The unit will make the disc changing noises for a few moments and then it should operate normally. |
| **The picture does not appear on the TV, when playing DVD or Video CD.** | The region number of the disc doesn't match the region number of this unit. (DVD only) front cover<br>Connect the video cable. ❽<br>Set the TV to video input mode. |
| **CD MANAGER, program and random play cannot be used.** | Ensure a Video CD or CD is in the play position tray. ㉒, ㉓, ㉔ |
| **The SETUP menu cannot be accessed.** | Select disc as the source.<br>Cancel program and random play, or select "NORMAL" with CD MANAGER. ㉒, ㉓, ㉔ |
| **You have forgotten your ratings password.** | Reset the unit to its original factory settings by doing the following.<br>① Press [■,TUNE MODE] on the main unit and [≥**10**] on the remote control at the same time for about 3 seconds until the message "Initialized" disappears from the television screen.<br>② Turn the unit off and on again. |

### The remote control

| | |
|---|---|
| **The remote control doesn't work.** | Check the batteries are inserted correctly. ❺<br>Replace the batteries if they are worn. |

## Maintenance

#### If the surfaces are dirty

**To clean this unit, wipe with a soft, dry cloth.**

- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

#### For a cleaner crisper sound

Clean the heads regularly to assure good quality playback and recording.
Use a cleaning tape (not included).

## Product Service

1. **Damage requiring service**—The unit should be serviced by qualified service personnel if:
   (a) The AC power supply cord or AC adaptor has been damaged; or
   (b) Objects or liquids have gotten into the unit; or
   (c) The unit has been exposed to rain; or
   (d) The unit does not operate normally or exhibits a marked change in performance; or
   (e) The unit has been dropped or the cabinet damaged.
2. **Servicing**—Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **Replacement parts**—When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
4. **Safety check**—After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

#### Product information

For product information or assistance with product operation:
***In the U.S.A., contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or web site (http://www.panasonic.com).***

***In Canada, contact Panasonic Canada Inc. Customer Care Centre at 1-800-561-5505, web site (www.panasonic.ca), or an authorized Servicentre closest to you.***

### Chapter
This is the smallest division on DVD and is roughly equivalent to a track.

### Title
This is the largest division on DVD.

### Track
This is the smallest division on Video CD and Audio CD, and usually equates to a single song.

### PBC (Playback control)
This method of controlling disc play is included on version 2.0 Video CDs. You are able to interact with the disc through menus.

## Digital audio

### Bitstream
This is the digital form of multiple channel audio data (e.g. 5.1 channel) before it is decoded into its various channels.

### Decoder
A decoder restores the coded audio signals on DVDs to normal. This is called decoding.

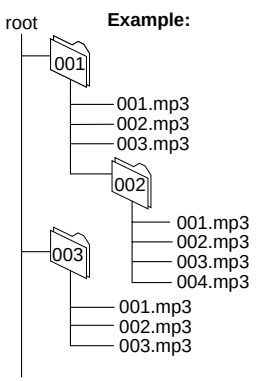
### PCM (Pulse code modulation), Linear PCM
PCM is the usual digital method used for Audio CDs. DVDs have a greater volume so they use linear PCM, which has a higher sampling rate.

### Sampling rate
This is the number of samples of sound taken per second during conversion to a digital signal. Sampling frequency is expressed in kilohertz (kHz). A high sampling frequency results in a sound close to the original when played back.

### MP3
A method of compressing audio, MPEG Audio Layer 3 (MP3) allows audio to be reduced up to one tenth its original size without overtly hurting audio quality.

**When creating MP3 files to play on this unit**

- Disc formats: ISO9660 level 1 and level 2 (except for extended formats)
  Files: MP3 files with the suffix ".mp3" or ".MP3"
- This unit is not compatible with files with a sampling rate of 32 kHz.
- This unit is compatible with multi-session but if there are a lot of sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.
- To have this unit play files in a certain order, prefix folder and file names with numbers in the order you want to play them. This may not work in all cases.




## Video

### Frame
Frames are the still pictures that go together to make a moving picture. There are about thirty frames shown each second.

### Field
One frame is made up of two fields. A regular television shows these fields one after the other to create frames.

### Frame still and field still
A still is shown when you pause a moving picture. A frame still is made up of two alternating fields, so the picture may appear blurred, but overall quality is high. A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

### I/P/B
MPEG 2, the video compression standard adapted for use with DVD, codes frames using these three picture types.

I: Intra coded picture (I-picture)
This is the standard picture and is a complete picture in itself. This means it has the best picture quality and is the best to use when adjusting the picture.

P: Predictive coded picture (P-picture)
This picture is calculated based on past I and P-pictures.

B: Bidirectionally-predictive coded picture (B-picture)
This picture is calculated by comparing past and future I and P-pictures so it has the lowest volume of information.

**Panasonic** **Technics** **Quasar**

***For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:***
***1-800-211-PANA (7262), Monday–Friday 9 am–9 pm; Saturday–Sunday 9 am–7 pm, EST.***

***Web Site: http://www.panasonic.com***
***You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.***

***Accessory Purchases:***

**1-800-332-5368 (Customer Orders Only)**
**Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032**
**(6 am to 5 pm Monday–Friday; 6 am to 10:30 am Saturday; PST)**
**(Visa, MasterCard, Discover Card, American Express, Check)**

***Factory Servicenters Locations***

**CALIFORNIA**
6550 Katella Avenue
Cypress, CA 90630

800 Dubuque Avenue
S. San Francisco
CA 94080

3878 Ruffin Road
Suite A
San Diego, CA 92123

**FLORIDA**
3700 North 29th Avenue
Suite 102
Hollywood, FL 33020

**GEORGIA**
8655 Roswell Road
Suite 100
Atlanta, GA 30350

**ILLINOIS**
1709 North Randall Road
Elgin, IL 60123

**MASSACHUSETTS**
60 Glacier Drive
Suite G
Westwood, MA 02090

**MINNESOTA**
7850-12th Avenue South
Airport Business Center
Bloomington, MN 55425

**OHIO**
2236 Waycross Road
Civic Center Plaza
Forest Park, OH 45240

**PENNSYLVANIA**
2221 Cabot Blvd. West
Suite B
Langhorne, PA 19047

**TEXAS**
13615 Welch Road
Suite 101
Farmers Branch
TX 75244

**WASHINGTON**
20425-84th Avenue South
Kent, WA 98032

**HAWAII**
99-859 Iwaiwa Street
Aiea, Hawaii 96701
Phone (808) 488-1996
Fax (808) 486-4369

***Service in Puerto Rico***
***Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/Factory Servicenter:***
***Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985***
***Phone (787) 750-4300 Fax (787) 768-2910***

**Panasonic Consumer Electronics Company,**
**Division of Matsushita Electric Corporation of America**
One Panasonic Way Secaucus, New Jersey 07094

**Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.**
Ave. 65 de Infantería, Km. 9.5
San Gabriel Industrial Park, Carolina, Puerto Rico 00985

# Panasonic/Technics Audio Products Limited Warranty

Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the Warrantor") will repair or replace this product with new or refurbished parts or equivalent product, free of charge in the U.S.A. or Puerto Rico, in the event of a defect in materials or workmanship as follows (all time periods commence from the date of original purchase):

AUDIO PRODUCTS—labor and parts for one (1) year.
ALL AUDIO RACKS (cabinets)—parts only 30 days.
TECHNICS STAND ALONE SPEAKERS, SUBWOOFER SPEAKERS—labor and parts for three (3) years.
USB READER-WRITER, PERSONAL COMPUTER CARD ADAPTERS—(when applicable)—exchange defective unit with a new or refurbished one for one (1) year.
ACCESSORIES—HEADPHONES, CARTRIDGES, MICROPHONES, ADAPTERS—labor and parts for ninety (90) days.

RECHARGEABLE BATTERIES—(when applicable)—exchange defective item for new one for ten (10) days. Non-rechargeable batteries are not warranted.

SD MEMORY CARDS, RECHARGEABLE BATTERY PACKS—(when applicable)—exchange defective item for new one for ninety (90) days. Non-rechargeable battery packs are not warranted.

Carry-in or mail-in service in the U.S.A. can be obtained during the warranty period by contacting a Panasonic Services Company (PASC) Factory Servicenter listed in the Servicenter Directory. Or call toll free, 1-800-211-7262 to locate a PASC authorized Servicenter. Carry-in or mail-in service in Puerto Rico can be obtained during the warranty period by calling the Panasonic Sales Company telephone number listed in the Servicenter Directory.

This warranty is extended only to the original purchaser. A purchase receipt or other proof of date of original purchase will be required before warranty service is rendered.

This warranty only covers failures due to defects in materials and workmanship which occur during normal use and does not cover normal wear to the stylus (when applicable) or a dealer installed cartridge or stylus. The warranty does not cover damages which occur in shipment or failures which are caused by products not supplied by the warrantor, or failures which result from accident, misuse, abuse, neglect, mishandling, faulty installation, misapplication, set-up adjustments, maladjustment of consumer controls, improper operation or maintenance, improper antenna, inadequate signal reception or pick-up, alteration, modification, power line surge, improper voltage supply, lightning damage, commercial use, such as; hotel, office, restaurant, or other business or rental use of the product, or service by anyone other than a PASC Factory Servicenter or a PASC authorized Servicenter, or damage that is attributable to acts of God.

## LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

THE WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the Consumer Affairs Department at the company address indicated above.

If you ship the product
Carefully pack and send it prepaid, adequately insured and preferably in the original carton.
Attach a postage-affixed letter, detailing the complaint, to the outside of the carton.
*Do NOT send the product to the Executive or Regional Sales offices. They are NOT equipped to make repairs.*

# Specifications

**For U.S.A., Canada and Latin America**

## AMPLIFIER SECTION

**For U.S.A. and Canada**

**Power output**
- **10 % THD, both channels driven**
  - **75 Hz**
    - **SUBWOOFER** 150 W (4 Ω)
  - **1 kHz**
    - **FRONT** 35 W per ch (6 Ω)
    - **CENTER** 60 W (8 Ω)
    - **SURROUND** 30 W per ch (8 Ω)

**Total power in stereo mode**
(FRONT and SUBWOOFER) 220 W

**Total power in Home Theater mode**
340 W

**Power output**
- **10 % THD, both channels driven**
  - **50 Hz–120 Hz**
    - **SUBWOOFER** 130 W (4 Ω)
  - **60 Hz–16 kHz**
    - **FRONT** 28 W per ch (6 Ω)
  - **100 Hz–16 kHz**
    - **CENTER** 44 W (8 Ω)
    - **SURROUND** 25 W per ch (8 Ω)

**Total power in stereo mode (10% THD)**
(FRONT and SUBWOOFER) 186 W

**Total power in Home Theater mode**
**(10% THD)** 280 W

**Input sensitivity**
**AUX** 250 mV

**Input impedance**
**AUX** 10 kΩ

## AMPLIFIER SECTION

**For Latin America**

**RMS power output**
- **10 % THD, both channels driven**
  - **75 Hz**
    - **SUBWOOFER** 150 W (4 Ω)
  - **1 kHz**
    - **FRONT** 45 W per ch (6 Ω)
    - **CENTER** 70 W (8 Ω)
    - **SURROUND** 40 W per ch (8 Ω)

**Total power in stereo mode**
(FRONT and SUBWOOFER) 240 W

**Total power in Home Theater mode**
390 W

**PMPO power output** 3300 W

**Input sensitivity**
**AUX** 250 mV

**Input impedance**
**AUX** 10 kΩ

## FM TUNER SECTION

**Frequency range**
- **(For U.S.A. and Canada)**
  87.9–107.9 MHz (200 kHz step)
  87.5–108.0 MHz (100 kHz step)
- **(For Latin America)**
  87.50–108.00 MHz (50 kHz step)

**Sensitivity** 1.8 µV (IHF)
**S/N 26 dB** 1.5 µV
**Antenna terminals** 75 Ω (unbalanced)

## AM TUNER SECTION

**Frequency range**
- **(For U.S.A. and Canada)**
  520–1710 kHz (10 kHz step)
- **(For Latin America)**
  522–1629 kHz (9 kHz step)
  520–1630 kHz (10 kHz step)

**Sensitivity**
- **(For U.S.A. and Canada)**
  - **S/N 20 dB at 1000 kHz** 500 µV/m
- **(For Latin America)**
  - **S/N 20 dB at 999 kHz** 500 µV/m

## CASSETTE DECK SECTION

**Track system** 4 track, 2 channel

**Heads**
- **Record/playback** Solid permalloy head
- **Erasure** Double gap ferrite head

**Motor** DC servo motor
**Recording system** AC bias 100 kHz
**Erasing system** AC erase 100 kHz
**Tape speed** 4.8 cm/s ($1^{7}/_{8}$ ips)

**Overall frequency response**
**(+3, − 6 dB at DECK OUT)**
- **NORMAL (TYPE I)** 35 Hz–14 kHz
- **HIGH (TYPE II)** 35 Hz–14 kHz

**S/N ratio** 50 dB (A weighted)
**Wow and flutter** 0.18 % (WRMS)
**Fast forward and rewind time**
Approx. 120 seconds with C-60 cassette tape

## DISC SECTION

**Disc**
- **DVD-Video**
  8 cm/12 cm single-sided, single-layer
  8 cm/12 cm single-sided, double-layer
  8 cm/12 cm double-sided, double-layer
  (One layer per side)
- **Video CD/CD** 8 cm/12 cm (CD-R/RW)

**Video**
- **Signal system** NTSC
- **Output level**
  - **Composite video** 1 Vp-p (75 Ω)
  - **S-VIDEO Y** 1 Vp-p (75 Ω)
  - **S-VIDEO C** 0.286 Vp-p (75 Ω) (NTSC)

**Audio**
- **Sampling frequency**
  - **CD** 44.1 kHz
  - **DVD** 48 kHz/96 kHz
- **Decoding** 16/20/24 bit linear
- **Wow and flutter**
  Below measurable limit
- **D/A converter** Delta-sigma DAC

**Pick up**
- **Beam Source** Semiconductor Laser
- **Wavelength**
  - **DVD** 658 nm
  - **VCD/CD** 790 nm

## SPEAKER SECTION

**Front speakers SB-DK20**

**Type** 2 way speaker system

**Speakers**
- **Woofer** 12 cm ($4^{3}/_{4}$″) cone type
- **Tweeter** 6 cm ($2^{3}/_{8}$″) cone type

**Impedance** 6 Ω
**Input power** 80 W (Music)
**Output sound pressure level**
86 dB/W (1.0 m)
**Cross over frequency** 5 kHz
**Frequency range**
55 Hz–22 kHz (–16 dB)
75 Hz–20 kHz (–10 dB)
**Dimensions (WxHxD)**
192x315x295 mm
($7^{9}/_{16}$″x$12^{13}/_{32}$″x$11^{5}/_{8}$″)
**Mass** Approx. 2.7 kg (6.0 lb.)

**Surround speakers SB-PS90**

**Type** 1 way, 1 speaker, closed system

**Speaker**
- **Full range** 8 cm ($3^{1}/_{8}$″) cone type

**Impedance** 8 Ω
**Input power** 70 W (Music)
**Output sound pressure level**
84 dB/W (1.0 m)
**Frequency range**
130 Hz–20 kHz (–16 dB)
150 Hz–18 kHz (–10 dB)
**Dimensions (WxHxD)**
140x99x118 mm
($5^{1}/_{2}$″x$3^{29}/_{32}$″x$4^{21}/_{32}$″)
**Mass** Approx. 0.9 kg (2.0 lb.)

**Center speaker SB-PC93**

**Type** 1 way, 1 speaker, closed system

**Speaker**
- **Full range** 8 cm ($3^{1}/_{8}$″) cone type

**Impedance** 8 Ω
**Input power** 70 W (Music)
**Output sound pressure level**
84 dB/W (1.0 m)
**Frequency range**
130 Hz–20 kHz (–16 dB)
150 Hz–18 kHz (–10 dB)
**Dimensions (WxHxD)** 140x99x118 mm
($5^{1}/_{2}$″x$3^{29}/_{32}$″x$4^{21}/_{32}$″)
**Mass** Approx. 0.8 kg (1.8 lb.)

**Subwoofer SB-W20**

**Type** 1 way speaker Bass-reflex

**Speaker**
- **Woofer** 17 cm ($6^{3}/_{4}$″) cone type

**Impedance** 4 Ω
**Input power** 340 W (Music)
170 W (DIN)
**Output sound pressure level**
80 dB/W (1.0 m)
**Frequency range** 42 Hz–1.5 kHz (–16 dB)
46 Hz–900 Hz (–10 dB)
**Dimensions (WxHxD)** 173x315x300 mm
($6^{13}/_{16}$″x$12^{13}/_{32}$″x$11^{13}/_{16}$″)
**Mass** Approx. 4.0 kg (8.8 lb.)

## GENERAL

**For U.S.A. and Canada**

**Power supply** AC 120 V, 60 Hz
**Power consumption** 161 W
**Dimensions (WxHxD)**
215.4x315x350 mm
($8^{1}/_{2}$″x$12^{13}/_{32}$″x$13^{25}/_{32}$″)
**Mass** Approx. 7.8 kg (17.2 lb.)

## GENERAL

**For Latin America**

**Power supply** AC 110/127/220–230/240 V, 50/60 Hz
**Power consumption** 191 W
**Dimensions (WxHxD)** 215.4x315x350 mm
**Mass** Approx. 8.1 kg

| **Power consumption in standby mode** | |
|---|---|
| (For U.S.A. and Canada) | 0.25 W |
| (For Latin America) | 0.8 W |

Notes:
1. Specifications are subject to change without notice.
   Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

## AMPLIFIER SECTION

**RMS power output**
**10 % THD, both channels driven**
**75 Hz**
**SUBWOOFER** 150 W (4 Ω)
**1 kHz**
**FRONT** 40 W per ch (6 Ω)
**CENTER** 80 W (8 Ω)
**SURROUND** 40 W per ch (8 Ω)
**Total power in stereo mode**
(FRONT and SUBWOOFER) 230 W
**Total power in Home Theater mode**
390 W
**PMPO power output** 3300 W
**Input sensitivity**
**AUX** 250 mV
**MIC** 0.7 mV
**Input impedance**
**AUX** 10 kΩ
**MIC** 600 Ω

## FM TUNER SECTION

**Frequency range**
87.50–108.00 MHz (50 kHz step)
**Sensitivity** 1.8 µV (IHF)
**S/N 26 dB** 1.5 µV
**Antenna terminals** 75 Ω (unbalanced)

## AM TUNER SECTION

**Frequency range**
522–1629 kHz (9 kHz step)
520–1630 kHz (10 kHz step)
**Sensitivity**
**S/N 20 dB at 999 kHz** 500 µV/m

## CASSETTE DECK SECTION

**Track system** 4 track, 2 channel
**Heads**
**Record/playback** Solid permalloy head
**Erasure** Double gap ferrite head
**Motor** DC servo motor
**Recording system** AC bias 100 kHz
**Erasing system** AC erase 100 kHz
**Tape speed** 4.8 cm/s ($1^{7}/_{8}$ ips)
**Overall frequency response**
**(+3, − 6 dB at DECK OUT)**
**NORMAL (TYPE I)** 35 Hz–14 kHz
**HIGH (TYPE II)** 35 Hz–14 kHz
**S/N ratio** 50 dB (A weighted)
**Wow and flutter** 0.18 % (WRMS)
**Fast forward and rewind time**
Approx. 120 seconds
with C-60 cassette tape

## DISC SECTION

**Disc**
**DVD-Video**
8 cm/12 cm single-sided, single-layer
8 cm/12 cm single-sided, double-layer
8 cm/12 cm double-sided, double-layer
(One layer per side)
**Video CD/CD** 8 cm/12 cm (CD-R/RW)
**Video**
**Signal system** NTSC/PAL
(depending on disc format)
**Output level**
**Composite video** 1 Vp-p (75 Ω)
**S-VIDEO Y** 1 Vp-p (75 Ω)
**S-VIDEO C** 0.300 Vp-p (75 Ω) (PAL)
0.286 Vp-p (75 Ω) (NTSC)
**Audio**
**Sampling frequency**
**CD** 44.1 kHz
**DVD** 48 kHz/96 kHz
**Decoding** 16/20/24 bit linear
**Wow and flutter** Below measurable limit
**D/A converter** Delta-sigma DAC
**Pick up**
**Beam Source** Semiconductor Laser
**Wavelength**
**DVD** 658 nm
**VCD/CD** 790 nm

## SPEAKER SECTION

**Front speakers SB-DK20**
**Type** 2 way speaker system
**Speakers**
**Woofer** 12 cm cone type
**Tweeter** 6 cm cone type
**Impedance** 6 Ω
**Input power** 80 W (Music)
**Output sound pressure level**
86 dB/W (1.0 m)
**Cross over frequency** 5 kHz
**Frequency range**
55 Hz–22 kHz (–16 dB)
75 Hz–20 kHz (–10 dB)
**Dimensions (WxHxD)**
192x315x295 mm
**Mass** Approx. 2.7 kg

**Surround speakers SB-PS90**
**Type** 1 way, 1 speaker,
closed system
**Speaker**
**Full range** 8 cm cone type
**Impedance** 8 Ω
**Input power** 70 W (Music)
**Output sound pressure level**
84 dB/W (1.0 m)
**Frequency range**
130 Hz–20 kHz (–16 dB)
150 Hz–18 kHz (–10 dB)
**Dimensions (WxHxD)**
140x99x118 mm
**Mass** Approx. 0.9 kg

**Center speaker SB-PC90**
**Type** 2 way, 3 speaker,
bass-reflex system
**Speaker**
**Woofer** 8 cm cone type x 2
**Tweeter** 6 cm cone type
**Impedance** 8 Ω
**Input power** 160 W (Music)
**Output sound pressure level**
86 dB/W (1.0 m)
**Cross over frequency** 4 kHz
**Frequency range**
100 Hz–22 kHz (–16 dB)
115 Hz–20 kHz (–10 dB)
**Dimensions (WxHxD)** 190x99x166 mm
**Mass** Approx. 1.8 kg

**Subwoofer SB-W20**
**Type** 1 way speaker Bass-reflex
**Speaker**
**Woofer** 17 cm cone type
**Impedance** 4 Ω
**Input power** 340 W (Music)
170 W (DIN)
**Output sound pressure level**
80 dB/W (1.0 m)
**Frequency range** 42 Hz–1.5 kHz (–16 dB)
46 Hz–900 Hz (–10 dB)
**Dimensions (WxHxD)** 173x315x300 mm
**Mass** Approx. 4.0 kg

## GENERAL

**Power supply**
AC 110/127/220–230/240 V,
50/60 Hz
**Power consumption** 191 W
**Dimensions (WxHxD)**
215.4x315x350 mm
**Mass** Approx. 8.1 kg

**Power consumption**
**in standby mode:** 0.8 W

Notes:
1. Specifications are subject to change without notice.
   Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

## AMPLIFIER SECTION

**RMS power output**
**10 % THD, both channels driven**
**75 Hz**
**SUBWOOFER** 150 W (4 Ω)
**1 kHz**
**FRONT** 45 W per ch (6 Ω)
**CENTER** 70 W (8 Ω)
**SURROUND** 40 W per ch (8 Ω)
**Total power in stereo mode**
(FRONT and SUBWOOFER) 240 W
**Total power in Home Theater mode**
390 W
**Input sensitivity**
**AUX** 250 mV
**Input impedance**
**AUX** 10 kΩ

## FM TUNER SECTION

**Frequency range**
87.50–108.00 MHz (50 kHz step)
**Sensitivity** 1.8 µV (IHF)
**S/N 26 dB** 1.5 µV
**Antenna terminals** 75 Ω (unbalanced)

## AM TUNER SECTION

**Frequency range**
522–1629 kHz (9 kHz step)
**Sensitivity**
**S/N 20 dB at 999 kHz** 500 µV/m

## CASSETTE DECK SECTION

**Track system** 4 track, 2 channel
**Heads**
**Record/playback** Solid permalloy head
**Erasure** Double gap ferrite head
**Motor** DC servo motor
**Recording system** AC bias 100 kHz
**Erasing system** AC erase 100 kHz
**Tape speed** 4.8 cm/s ($1^{7}/_{8}$ ips)
**Overall frequency response**
**(+3, − 6 dB at DECK OUT)**
**NORMAL (TYPE I)** 35 Hz–14 kHz
**HIGH (TYPE II)** 35 Hz–14 kHz
**S/N ratio** 50 dB (A weighted)
**Wow and flutter** 0.18 % (WRMS)
**Fast forward and rewind time**
Approx. 120 seconds
with C-60 cassette tape

## DISC SECTION

**Disc**
**DVD-Video**
8 cm/12 cm single-sided, single-layer
8 cm/12 cm single-sided, double-layer
8 cm/12 cm double-sided, double-layer
(One layer per side)
**Video CD/CD** 8 cm/12 cm (CD-R/RW)
**Video**
**Signal system** NTSC/PAL
(depending on disc format)
**Output level**
**Composite video** 1 Vp-p (75 Ω)
**S-VIDEO Y** 1 Vp-p (75 Ω)
**S-VIDEO C** 0.300 Vp-p (75 Ω) (PAL)
0.286 Vp-p (75 Ω) (NTSC)
**Audio**
**Sampling frequency**
**CD** 44.1 kHz
**DVD** 48 kHz/96 kHz
**Decoding** 16/20/24 bit linear
**Wow and flutter** Below measurable limit
**D/A converter** Delta-sigma DAC
**Pick up**
**Beam Source** Semiconductor Laser
**Wavelength**
**DVD** 658 nm
**VCD/CD** 790 nm

## SPEAKER SECTION

**Front speakers SB-DK20**
**Type** 2 way speaker system
**Speakers**
**Woofer** 12 cm cone type
**Tweeter** 6 cm cone type
**Impedance** 6 Ω
**Input power** 80 W (Music)
**Output sound pressure level**
86 dB/W (1.0 m)
**Cross over frequency** 5 kHz
**Frequency range**
55 Hz–22 kHz (–16 dB)
75 Hz–20 kHz (–10 dB)
**Dimensions (WxHxD)**
192x315x295 mm
**Mass** Approx. 2.7 kg

**Surround speakers SB-PS90**
**Type** 1 way, 1 speaker, closed system
**Speaker**
**Full range** 8 cm cone type
**Impedance** 8 Ω
**Input power** 70 W (Music)
**Output sound pressure level**
84 dB/W (1.0 m)
**Frequency range**
130 Hz–20 kHz (–16 dB)
150 Hz–18 kHz (–10 dB)
**Dimensions (WxHxD)**
140x99x118 mm
**Mass** Approx. 0.9 kg

**Center speaker SB-PC93**
**Type** 1 way, 1 speaker, closed system
**Speaker**
**Full range** 8 cm cone type
**Impedance** 8 Ω
**Input power** 70 W (Music)
**Output sound pressure level**
84 dB/W (1.0 m)
**Frequency range**
130 Hz–20 kHz (–16 dB)
150 Hz–18 kHz (–10 dB)
**Dimensions (WxHxD)** 140x99x118 mm
**Mass** Approx. 0.8 kg

**Subwoofer SB-W20**
**Type** 1 way speaker Bass-reflex
**Speaker**
**Woofer** 17 cm cone type
**Impedance** 4 Ω
**Input power** 340 W (Music)
170 W (DIN)
**Output sound pressure level**
80 dB/W (1.0 m)
**Frequency range** 42 Hz–1.5 kHz (–16 dB)
46 Hz–900 Hz (–10 dB)
**Dimensions (WxHxD)** 173x315x300 mm
**Mass** Approx. 4.0 kg

## GENERAL

**Power supply** AC 230–240 V, 50 Hz
**Power consumption** 186 W
**Dimensions (WxHxD)**
215.4x315x350 mm
**Mass** Approx. 8.1 kg

**Power consumption**
**in standby mode:** 0.6 W

Notes:
1. Specifications are subject to change without notice.
   Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

The model number and serial number of this product can be found on either the back or the bottom of the unit.
Please note them in the space provided below and keep for future reference.

| | MODEL NUMBER | SERIAL NUMBER |
|---|---|---|
| Main unit | | |
| Front speakers | | |
| Center speaker | | |
| Surround speakers | | |
| Subwoofer | | |

**User memo:**

**DATE OF PURCHASE** _____
**DEALER NAME** _____
**DEALER ADDRESS** _____
_____
**TELEPHONE NUMBER** _____

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, and 4,819,098, licensed for limited viewing uses only.

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As an ENERGY STAR® Partner, Panasonic has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

En

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